



Computer Weekly

Thursday, January 14, 1982

Competitor for BT in value added field

by David Craver

ONE of the first companies to apply for a licence to offer added value services in competition with British Telecom over its telecommunications networks will be Commercial Cable Co, the UK subsidiary of International Telephone and Telegraph.

At the same time, an ITT spokesman in New York has confirmed that talks are taking place which could lead to ITT's communications services group, of which Commercial Cable is a part, being set up as a separate entity. This would take the form of either a new public company or a joint venture with another company.

ITT's fast growing communications service group is in need of additional capital to expand its business. That includes ITT's role as the leading carrier of international telec from the US, and its new domestic telex and telephone services.

The spokesman says that the talks have been "more in-house than with other corporations", and that speculation concerning the group is "very premature". "Nothing definitive is going on," he adds, and decisions will at least await ITT's offer for sale of its US forest products subsidiary, ITT Raymont. That could bring in \$3.3 billion and solve the capital problem.

Commercial Cable's entry into the market for value added telecommunications services, which will probably involve telex, is made possible by the government's move towards deregulation. That allows value added services to be sold in competition with BT as of this year, with the first licence expected to be issued by the Department of Industry no sooner than April.

Laser printer

SPIERRY Univac has introduced a plug-compatible version of IBM's 3800 laser printer, based on its own 077 laser printer for use on-line or off-line.

AT&T buys stake in Irish telecoms

by Kevin Cahill

AMERICAN Telephone and Telegraph, the giant American telecommunications company, is in the final stage of negotiations to take a significant stake in Ireland's biggest electronics company, Teletel.

AT&T has just reached a historic agreement with the American government's antitrust department to divest two of three of its assets in the shape of local American telephone companies (see page 2).

As a result of this agreement, and of deregulation of telecoms and data transmission in the States, AT&T is expected to become much more active in the field of electronics and computing, with the Irish deal probably the first of several in Europe.

The choice of Teletel, an unquoted private company in Dublin which employs about 800 people

and which had turnover of £10 million according to the last published accounts, is directly connected with Teletel's £40 million participation in the £800 million redevelopment of the Irish phone system.

The major contract for the modernisation went to CIT Alcatel of France, but with substantial local subcontracting guaranteed to Irish companies, such as Teletel.

Teletel has traditionally been strong in transmission equipment. The deal with Alcatel will draw Teletel into digital switching systems and is scheduled to produce 1,000 jobs in the jointly owned company, which will have its manufacturing base in Bandon, Co. Cork.

Irish sources suggest that the price to be paid for the AT&T stake of 45% will be about £13.6 million, based on the £1.9 million Guinness paid recently for a 26% stake in the company.

Battle of IBM and AT&T

● From front page

When it was filed, IBM had an estimated 70% of the world mainframe market. More recently, IBM's share has been estimated at under 60%.

The government's case against IBM never appeared to hold back the company from competing vigorously, particularly in recent months when its pricing of the IBM personal computer and other products was seen as particularly competitive.

IBM's defence of its case had always been that it provided superior products and services, and it was these, rather than any other actions, which accounted for its large market share.

Most industry analysts believe the dismissal of the case will have no significant effect on IBM or



CURRAN... IBM will require more effort for its EEC case.

the world-wide market for mainframe computers. Meanwhile minicomputer manufacturer Digital Equipment Corp (DEC) has grown in size to be the second largest computer manufacturer in the world prior to the Burroughs/Memorex merger.

IBM's share in the US market has now dropped to 58% and is only marginally higher worldwide at 62%.

The dismissal of the case is unlikely to change the minds of the European Commission to press ahead with their case against IBM's alleged abuse of its dominant market position.

Andal, the other major plug-compatible competitor to IBM, refused to comment.

At the time the case began 12 years ago, IBM controlled 70% of

'UK must aim for standard software'

by Claire Gooding

BRITISH real time software specialists must move away from bespoke projects and aim at producing standard software products or modules.

This was the conclusion of a report on real time software research and development in the UK from the National Economic Development Office. The report paints a picture of an industry whose potential is being wasted on fragmented and duplicated development work.

According to NEDO, even the largest companies are having problems in producing generalised high-level software tools, and for small British companies such investment undertaken individually is out of the question.

In answer to these problems the report recommends that major public sector customers in the UK get together to define a shortlist of software tools and methods for all new contracts, and that the real time software companies them selves co-ordinate developments and pool their expertise.

The NEDO report held up as an example the Japanese, or more accurately, Toshiba Corp. Toshiba's Heavy Apparatus Division, which produces nuclear reactors and other heavy engineering, set up a software factory of 2,000 employees to develop real time software for industrial process control and related areas.

The only example of similar co-operation NEDO could find in Britain was the British Telecom System X project.



CHISHOLM... "We offer 25-year warranty."

John Chisholm of CAPS agrees with the report that perhaps it does not enough on government for enough on government for the real time software. "We are not big enough in strength of the Japanese. They are concentrating on the product not the product."

"Their techniques for productivity, re-useable code, software and less chance of error because the modules are proven. Their software is to have 0.8 bugs per thousand per year compared to 30% West and they offer a 25-year warranty. Our industry has rationalised along the lines of what we can do to compete with the product."

The report suggests a central mechanism set up by government to co-ordinate support for real time software development teams of software suppliers and sector customers.

In the meantime the Ministry of Defence could make its pre-versions of tools available at annual seminars should be run Royal Signals and Radar Establishment to further share its standard tools. (Leader, page 13.)

NEWS BRIEF

Swansea system for tender

PRIME Minister Margaret Thatcher seems to have scuttled a suggestion that a replacement for the system at the Driver and Vehicle Licensing Centre in Swansea should not go out to general tender. She has issued instructions that there is no reason to depart from the normal rules of government procurement.

The issue has yet to go to Cabinet. Despite the growing overload on the current system, there is no sign that Transport Secretary David Howell is ready to act. Both current supplier, ICL, and would-be bidder IBM, are concentrating on the product not the product.

The issue has yet to go to Cabinet. Despite the growing overload on the current system, there is no sign that Transport Secretary David Howell is ready to act. Both current supplier, ICL, and would-be bidder IBM, are concentrating on the product not the product.

"The issue has yet to go to Cabinet. Despite the growing overload on the current system, there is no sign that Transport Secretary David Howell is ready to act. Both current supplier, ICL, and would-be bidder IBM, are concentrating on the product not the product."

The introduction of a machine emulating rival hardware like this is expected to lead to machines of comparable capability becoming highly price competitive. As with the IBM plug compatible mainframe market this would reduce profitability on hardware and lead manufacturers to seek more of their margins from software.

The emulators are likely to sell mainly to the business market, though Tramtel has been reported as saying that they could cut into sales of existing products lines, sold mainly in the consumer market. "We'd prefer to compete with ourselves than

have someone else complete with us," he told the Wall Street Journal. "We are the American Japanese. We don't want to invent anything; we just want to make sure we have the best."

Commodore's emulator is likely to be shown first at the Hanover Fair in April, by which time the other machine should be available in the US. They are not likely to appear on European markets until late this year.

All three machines are aimed at the lower end of the personal computer market, and according to Commodore, offer better facilities at lower prices than established machines.

The Commodore 64, with 64K RAM readily expandable to 128K, is aimed at machines with 40-column colour displays such as the Apple II and Atari 800.

Compensation snag for French

by Jack Gee and David Craver

COMPENSATION has become a major stumbling block for President Mitterrand in his programme to nationalise and restructure the French computer industry. The Constitutional Council has at the last minute rejected compensation terms, while approving the principle of the State takeover.

The effect of the ruling will be to set back nationalisation by at least four or five weeks, and possibly several months. After new

details are ironed out, there will be another shuttle between the National Assembly and the Senate before a law comes into force.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

While the Constitutional Council, which has the last word on the French constitution, says the law as it stands fails to

offer adequate compensation to shareholders, amendment to the law could add £250 million to the £3 billion which nationalisation is likely to cost the taxpayer.

While the Constitutional Council has balked at compensation terms for the shareholders, it is unlikely to upset the government's overall scheme. CII-Honeywell Bull, Thomson, Compagnie Générale d'Électricité and Matra are the major firms in the French computer industry which will be affected by the government's

nationalisation plans.

CII-Honeywell and Thomson will be brought together in a close alliance, though it will fall short of an actual merger. The two will receive big injections of cash to create a viable French minicomputer industry. Though Matra-based Honeywell will have to be paid off, Mitterrand wants to maintain technological and commercial ties with the US firm.

The Council, which has the last word on the French constitution, says the law as it stands fails to

offer adequate compensation to shareholders. Amendment to the law could add £250 million to the £3 billion which nationalisation is likely to cost the taxpayer.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

While the Constitutional Council, which has the last word on the French constitution, says the law as it stands fails to

offer adequate compensation to shareholders. Amendment to the law could add £250 million to the £3 billion which nationalisation is likely to cost the taxpayer.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell Bull will also be costly.

Costs of nationalisation will also escalate. Already International Telephone and Telegraph is reported to be claiming \$375 million for the takeover of its telecommunications interests, and the reduction of Honeywell's share in CII-Honeywell

Clay firm aids jobless with comms venture

by Donald Kennett
IN an unusual foray into the communications industry, English Clay, best known for its quarrying, has started a joint venture with US company Western Union. A company will be formed to launch a range of new communications services in the UK over the next few years.

Like several other employers, notably Pilkington Glass in Lancashire, ECC finds itself the dominant employer in its community. Faced with declining manpower requirements at a time of generally rising unemployment, ECC set up a Local Enterprise Trust to ease the problems this caused.

Planning chief Dr Terry Thorncroft said the company had always been indirectly interested in communications, because of its remote location and its connection with the paper industry. Most of ECC's output goes into coatings to make paper easier to print on.

In looking for businesses which could use the space and people available in the area, the opportunities opened up by the British Telecommunications Act and trends to working in remote locations were an obvious direction, he said.

ECC's first investigations were into voice services based on the Delta telecommunications processor from the US. But the demise of Nexus, which was handling it in the UK, has been a setback. Other investigations with radio-telephone messaging company Air Call, and with the British Technology Group are continuing.

ECC has now put up £100,000 for a 20% stake in Western Union Global Information Services, the joint venture which will be run primarily by WU.



CURRAN... NAS is nudging Amdahl in market share.

PCMs in market share row

by Boris Sedacca
PLUG compatible mainframe manufacturers are becoming increasingly edgy about their relative market shares as they try to convince users of their viability as alternative suppliers to IBM.

Claimed by Olivetti last year that it is number two to Amdahl among European PCMs have produced a flood of statistics from its rivals.

Now National Advanced Systems claims to be in second slot by some measures and ahead of Amdahl on others in the increasingly tough fight to establish a permanent presence among European IBM

able.

Olivetti is using its corporate muscle to subsidise an entry into the plug-compatible business, where it sells Hitachi mainframes as the OH3500 range.

The survey, by the organisation Electronics Location File, also shows a remarkable buoyancy within the US electronics industry, and of the 500 companies questioned, more than one in three has plans to establish overseas operations by 1985.

60% in 1981 and installed 51 units of which 27 were NAS machines and 24 were Hitachi. We also increased our UK installed base by 50% from 17 to 25 units."

Mike Tucker, Magnuson's man-

aging director, claims that his company's installed base also exceeds that of Olivetti. In a letter this week, he quotes a Nephos survey which puts Amdahl market share at 45.5%, NAS at 25.5%, Magnuson at 18%, Olivetti at 7%, and BASF at 4%.

Meanwhile, Olivetti's managing director Derek Lewis last week clarified his company's position, saying that he was referring to machines installed or on order when he referred to the 12 new users in 1981, rather than machines installed.

"We have a total installed base of 219 units, the largest out of any PCM in Europe, representing more than 400 mips. We grew by

75 bits per second on average, 1,000 the other - he has overcome by London-based communications consultants Double L Electronic Developments. It has developed a 1110 speed changer for system builders to insert between the videotex modems and data port on computers or conventional terminals in their networks, to provide symmetrical 1,200 bps input and output.

The MP has asked for leave to bring in a Private Member's Bill to provide for protection of data in accordance with the European convention on the subject.

The Home Office is committed to introducing a White Paper on data protection in the session of parliament which started this week.

Michael Meacher (Lab, Oldham West) is hoping to raise the issue of privacy of computer-held data in the House of Commons because of political surveillance of private individuals.

The MP has asked for leave to bring in a Private Member's Bill to provide for protection of data in accordance with the European convention on the subject.

The Home Office is committed to introducing a White Paper on data protection in the session of parliament which started this week.

John Parnell hazards a guess of £3,000 for the final price of the full workstation with disc drive and graphics.

The price of the terminal alone

is £1,350, but sales director John Parnell

hopes to introduce a White Paper on data protection in the session of parliament which started this week.

John Parnell

Sales director John Parnell

is £3,000 for the final price of the full workstation with disc drive and graphics.

The price of the terminal alone

is £1,350, but sales director John Parnell

hopes to introduce a White Paper on data protection in the session of parliament which started this week.

John Parnell

Sales director John Parnell

is £3,000 for the final price of the full workstation with disc drive and graphics.

The price of the terminal alone

is £1,350, but sales director John Parnell

hopes to introduce a White Paper on data protection in the session of parliament which started this week.

John Parnell

Sales director John Parnell

is £3,000 for the final price of the full workstation with disc drive and graphics.

The price of the terminal alone

is £1,350, but sales director John Parnell

hopes to introduce a White Paper on data protection in the session of parliament which started this week.

John Parnell

Sales director John Parnell

is £3,000 for the final price of the full workstation with disc drive and graphics.

The price of the terminal alone

is £1,350, but sales director John Parnell

hopes to introduce a White Paper on data protection in the session of parliament which started this week.

John Parnell

Sales director John Parnell

is £3,000 for the final price of the full workstation with disc drive and graphics.

The price of the terminal alone

is £1,350, but sales director John Parnell

hopes to introduce a White Paper on data protection in the session of parliament which started this week.

John Parnell

Sales director John Parnell

is £3,000 for the final price of the full workstation with disc drive and graphics.

The price of the terminal alone

is £1,350, but sales director John Parnell

hopes to introduce a White Paper on data protection in the session of parliament which started this week.

John Parnell

Sales director John Parnell

is £3,000 for the final price of the full workstation with disc drive and graphics.

The price of the terminal alone

is £1,350, but sales director John Parnell

hopes to introduce a White Paper on data protection in the session of parliament which started this week.

John Parnell

Sales director John Parnell

is £3,000 for the final price of the full workstation with disc drive and graphics.

The price of the terminal alone

is £1,350, but sales director John Parnell

hopes to introduce a White Paper on data protection in the session of parliament which started this week.

John Parnell

Sales director John Parnell

is £3,000 for the final price of the full workstation with disc drive and graphics.

The price of the terminal alone

is £1,350, but sales director John Parnell

hopes to introduce a White Paper on data protection in the session of parliament which started this week.

John Parnell

Sales director John Parnell

is £3,000 for the final price of the full workstation with disc drive and graphics.

The price of the terminal alone

is £1,350, but sales director John Parnell

hopes to introduce a White Paper on data protection in the session of parliament which started this week.

John Parnell

Sales director John Parnell

is £3,000 for the final price of the full workstation with disc drive and graphics.

The price of the terminal alone

is £1,350, but sales director John Parnell

hopes to introduce a White Paper on data protection in the session of parliament which started this week.

John Parnell

Sales director John Parnell

is £3,000 for the final price of the full workstation with disc drive and graphics.

The price of the terminal alone

is £1,350, but sales director John Parnell

hopes to introduce a White Paper on data protection in the session of parliament which started this week.

John Parnell

Sales director John Parnell

is £3,000 for the final price of the full workstation with disc drive and graphics.

The price of the terminal alone

is £1,350, but sales director John Parnell

hopes to introduce a White Paper on data protection in the session of parliament which started this week.

John Parnell

Sales director John Parnell

is £3,000 for the final price of the full workstation with disc drive and graphics.

The price of the terminal alone

is £1,350, but sales director John Parnell

hopes to introduce a White Paper on data protection in the session of parliament which started this week.

John Parnell

Sales director John Parnell

is £3,000 for the final price of the full workstation with disc drive and graphics.

The price of the terminal alone

is £1,350, but sales director John Parnell

hopes to introduce a White Paper on data protection in the session of parliament which started this week.

John Parnell

Sales director John Parnell

is £3,000 for the final price of the full workstation with disc drive and graphics.

The price of the terminal alone

is £1,350, but sales director John Parnell

hopes to introduce a White Paper on data protection in the session of parliament which started this week.

John Parnell

Sales director John Parnell

is £3,000 for the final price of the full workstation with disc drive and graphics.

The price of the terminal alone

is £1,350, but sales director John Parnell

hopes to introduce a White Paper on data protection in the session of parliament which started this week.

John Parnell

Sales director John Parnell

is £3,000 for the final price of the full workstation with disc drive and graphics.

The price of the terminal alone

is £1,350, but sales director John Parnell

hopes to introduce a White Paper on data protection in the session of parliament which started this week.

John Parnell

Sales director John Parnell

is £3,000 for the final price of the full workstation with disc drive and graphics.

The price of the terminal alone

is £1,350, but sales director John Parnell

hopes to introduce a White Paper on data protection in the session of parliament which started this week.

John Parnell

Sales director John Parnell

is £3,000 for the final price of the full workstation with disc drive and graphics.

The price of the terminal alone

is £1,350, but sales director John Parnell

hopes to introduce a White Paper on data protection in the session of parliament which started this week.

John Parnell

CTL's desk-top sales set for speedy take-off

by David Craver

AFTER making only eight sales since entering the OEM market last June with a high-performance desktop computer system, Computer Technology of Hemel Hempstead admits to having been over-optimistic about how quickly it could achieve volume deliveries.

But sales of the highly praised 16-bit desk-top computer from Convergent Technology of California, for which CTL acts as the UK distributor, are now running at about one a week.

And by March 40 systems will be delivered, with a "conservative estimate" of 200 systems in the pipeline for next year, according to Howard Parkinson, director of the OEM division.

"Interest is very high," Parkinson says, "and the prospect level is significantly greater than anything CTL has ever had before." The Convergent system is designed for distributed computing in a high-speed local network.

Each workstation has its own 16-bit Intel 8086 microprocessor, 1 Mbyte of memory and a screen, with up to 17 stations clustered in a group.

Convergent Technology, the two-year-old Californian OEM which manufactures the systems, has signed long-term contracts with Burroughs, NCR, TRW, Savin Corp, and Thomson CSF of France, as well as a major procurement with the US Department of Transport through a Virginia software house.

As a private company which is expected soon to go public, Convergent president Allen Michels is reluctant to give many details of the company's operations. But he does say that over 1,000 machines have been produced so

far, and the company has recently moved into a new 77,000 sq ft manufacturing facility, bringing total capacity to 100,000 sq ft.

There are plans to expand further, and Michels says there will be no problem in meeting the demand for systems. The contract with Burroughs, which entails a "very large" number of systems, a seat on the board and the potential for an equity stake, does not mean that Burroughs will gobble up the company.

"Not at all," claims Michels, who says Burroughs can only take up the option for a shareholding when deliveries reach a certain level, and then it will only represent a few per cent stake. Burroughs will release its small business system, codenamed the B20, in the spring.

NCR is basing the word processor which represents its entry into office automation on the Convergent machine, and TRW will distribute the system in Europe as a replacement for the Datapoint line.

TRW recently sold Datapoint distribution rights back to Datapoint Corp. Thomson CSF is expected to distribute in France, but the nationalisation of this company leaves the agreement in doubt.

Michels was enthusiastic about CTL's prospects - an "outstanding company," he says, which he hopes will "replicate for us in the UK the same success we have had in the US."

In the next few months, CTL will release Convergent's latest product, an application workstation which costs about half as much as the more powerful system. Based on the Intel 8088, it comes with built-in Winchester and floppy disc and is fully compatible.



FIELD... Another 200 this year.

Ontel word processor now costs 20% less

by Maggie McLennan

REDESIGN of the Ontel word processor has resulted in a 20% reduction on the price of the widely-used Datatect standard word and information processing system.

Formed in 1979 specifically to market Ontel equipment, Surrey-based Datatect now has more than 1,600 installations in the UK, and customers include Barclays, Shell, ICI, British Airways and British Caledonian. Prime also buys Ontel word processors to attach to its computers and sell as turnkey systems.

Changes in the manufacture have been mostly in the structure of the casing, and there are two new keyboards to choose from. Compatible with existing Datatect installations, all the features of the previous system have been retained and command stringing and

mathematics facilities added.

Twenty of the new word and information processing systems are on order, and Derek Field, managing director of Datatect, is confident that a further 200 will be sold this year by his six-agent network in Norwich, Newcastle, Sussex, Hertfordshire and Surrey.

The terminal is machine programmable by the user, and Basic, Cobol, Fortran and Pascal compilers are available, also OPL, Ontel's version of Cobol. In interactive mode, it is compatible with ICL CO3 and IBM 3278 protocols.

Configured around 8085 architecture, integral serial and parallel adaptors allow cluster operations with multiple terminals accessing mass storage units. Datatect is offering a desk-top terminal with disc drive housing two quadruple density mini-disks and a daisywheel printer for £5,500.



Tournament winners Barclays Bank with prizes. Captain Alan Rosedale (back left) and Ian Pemberton, both (front left) reserve Neil Winward and Elliott Stuart.

unbeaten throughout the tournament.

Wright Line is the US distributor of equipment for storing computer media which is manufactured and sold in the country by the Carter-Parratt Group. The group immediately squashed competition at Capital 1980 and has been publishing progress via advertisements in Computer Weekly throughout the year.

"We hoped to get 256 entries," says Carter-Parratt chairman, Eric. "But there were too many applications that we had to change our plans to allow for a complete extra round."

The competition was again narrowed down to the final. On their way to the final, Barclays' first choice team of Ian Pemberton and fellow analysts Ian Peake and Bob Taylor, with players Neil Winward and Alan Rosedale, disposed of the Driver and W.L. Licensing Centre at Smeeth from engineering group GKN.

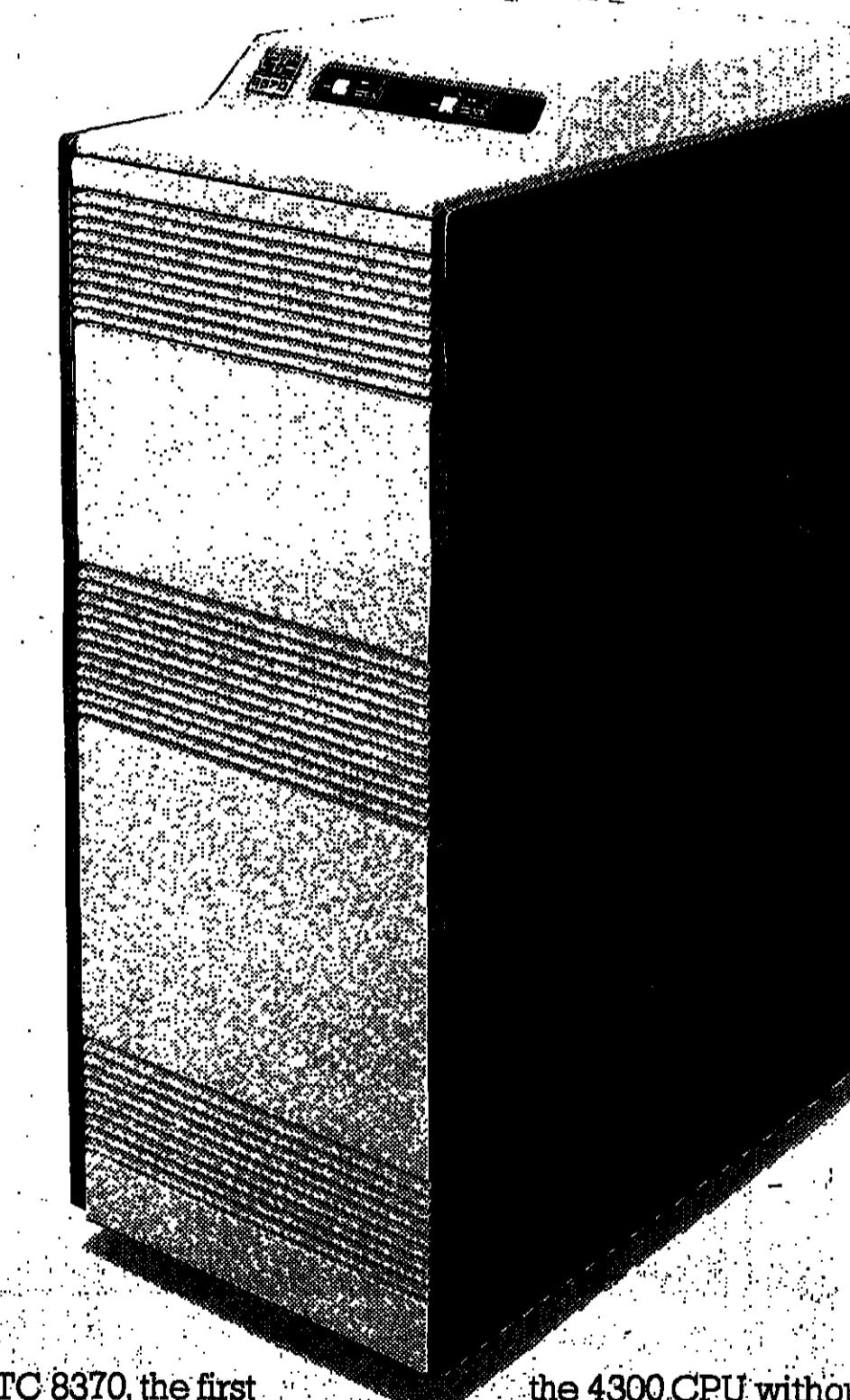
In the final Rosedale, prior to the absent Taylor, went down in his best of five match with Hambric's Hunt, but fought back well. Pemberton was beaten by Hambric's Gordon Goldie, first defeat of the champion, square the final at one match before Stuart clinched the £500 individual cheque, Barclays.

After the final the team gave a lesson in real squash to British professional club Philip Kenyon.

Kenyon then became the first in an impromptu song and dance from Pemberton and his captain Alan Rosedale. Suffice it to say that both would find another fortune through the squash than they would in the tournament.

The next Wright Line Squash Tournament is to be held in April with entries invited later this month. Details from promotions manager, Penthouse Suite, Turriff Road, Great West Road, Brentford, Middlesex TW8 9HZ. Tel: 081 2257. Telex: 934138 rcspld.

ACTIONS SPEAK LOUDER THAN WORDS...



the 4300 CPU without alterations to the hardware or software, and will be available during the third quarter of 1982.

For action rather than words contact Storage Technology today for full information, you'll be glad you did.



World leaders in main-frame computer peripherals

Switch on faster

with the No1
DEC Terminals
Distributor

Ex stock at the right
price... fitted with a plug and
ready to go it makes sense to link
terminals with Rapid Recall.

For years Britain's No 1
Microcomputer Specialists now
have the new focus in Terminals.

Rapid Recall for DEC Terminals

See us on stand 139
at the WHICH COMPUTER? show
19-22 January 1982

**The TOTAL
ANSWER
HAMILTON**

No 1

for rent or sale
of mini computer systems

**DATECH LTD.,
REGENT HOUSE, LOWER REGENT STREET,
BERTON, NOTTINGHAM NG9 1DU
Telephone (0602) 256019**

**DEC EQUIVALENT
CABLES!**

FROM STOCK

WE MANUFACTURE AND SUPPLY

- ★ AN EXTREMELY WIDE RANGE OF DEC EQUIVALENT CABLES
- ★ LOW COST RS 232 DATA LEADS
- ★ SPECIAL PURPOSE ASSEMBLIES
- AT EXTREMELY LOW PRICES WITH A FAST RELIABLE SERVICE
- WE ALSO
- ★ INSTALL LOCAL TERMINAL NETWORKS

TRIVECTOR
BRITISH-MADE MICROCOMPUTERS AT THEIR BEST

HARDWARE
MULTI TERMINAL TO 16 VDUS
MULTI PROCESSING TO 4 PROCESSORS
WINCHESTER DISK TO 10MB WITH SECURITY TAPE

TRIVECTOR COMMERCE LIMITED

SUNDERLAND ROAD

SANDY

BEDS.

TELEPHONE 0767 82222

DATA PROCESSOR BUSINESS SYSTEMS DESIGN
DATA PROCESSOR SYSTEMS DESIGN

With the STC 8370, the first
viable replacement for the IBM 3370,
Storage Technology have combined thin-
film technology together with fixed-block
architecture.

This provides both high performance
characteristics together with a recording
format which releases the user from the
device dependence of count key-data
devices.

The 8370 is fully compatible with the
IBM 3370 and capable of being utilised on

Storage Technology Ltd, Churchill House, Portsmouth Road, Esher, Surrey KT10 9AD. Telephone: Esher (0372) 87041

HP's Big News. Some News. And No News.

The most powerful HP 3000 we've ever built, ready to tackle your high-volume transaction processing, management reporting and information jobs. So is our lowest-priced HP 3000 ever. And both of them, like the rest of the HP 3000 family, protect your data processing investment with our traditional

software and hardware compatibility.

With the new Series 64, users at more than a hundred terminals around your company can enter or retrieve data, prepare reports or generate graphics – all simultaneously. And although the quiet, compact Series 40 has an entry-level price, there's nothing entry-level about its performance. It supports up to 56 terminals, doing exactly the same jobs as its bigger brother.

There's also an entire new line of economical disc drives to complement our computers. And good news in communications, too: all HP 3000s now support not only the CCITT X.21 and X.25 standards for communications between 3000s, but also the SNA networking protocol for simple access to IBM and other mainframes.

Small New Price

Starting at only £30,200* the new HP 3000 Series 40 is an economical approach to high-volume computing. The basic system includes 256 Kb of main memory, a 27 Mb disc with integrated tape backup, 4 terminal ports, and a system console. It can be expanded to 2 Mb of main memory and 56 terminals. As with the Series 64, it is available with comprehensive hardware and software support contracts.

No change in compatibility

Your investment in HP applications software is protected by the ability to run your programs on all HP 3000s – past, present and future.



That's not all. With our new RAPID/3000 software programming aids, your systems analysts can do their jobs in less than half the time it takes now. On any HP 3000. And software compatibility allows you to run the same programs on any other HP 3000.

Big, small or in between, there's an HP 3000 computer that can help your company. For more details about the Series 40 and Series 64, just post the coupon, or simply call your local HP office.

Hewlett-Packard Ltd, Winnersh, Wokingham, Berks, RG11 5AR. Tel: Wokingham (0734) 784774.

*Prices are correct at the time of going to press.
Prices exclude VAT and are subject to change without notice.



**HEWLETT
PACKARD**

Local HP offices are also at: Bristol, Maidenhead, Redhill, Southampton, London Colney, Altrincham, Solihull, Castleford, South Queensferry – Scotland, Dublin – Ireland.

Send to Hewlett-Packard Ltd, Winnersh, Wokingham, Berks, RG11 5AR

HP 3000 Series 40/64

- Tick as applicable
- Please send me more details
- Please ask a representative to call me for an appointment

Name _____
Title/Position _____
Company _____
Address _____

Postcode _____ Telephone no. _____

Big New Power

Our new Series 64, performance leader of the HP 3000 family, supports up to 8 Mb of main memory and more than 100 workstations and printers. The system is priced from £146,700* and is available with comprehensive hardware and software support contracts.

HP 3000 Series 64
Computer Systems

Call 0734 784774 or write to:

Hewlett-Packard Ltd, Winsor Road, Winsor, Berks, RG11 5AR

Telephone (0734) 784774 Telex 833510

Telex

'Cheap local net has edge on faster systems'

by Donald Kennett

FOR some time to come, low-speed local area networks will grab sales in preference to the higher performance systems such as Ethernet and the Cambridge ring.

This is the view of John Grant, technical director of Cambridge-based design consultancy Nine Tiles Information Handling which has announced a local networking ring designed to support communications between computers and terminals at up to 19.2 Kbps per second.

The ring, called Multilink, operates on a single twisted-pair cable, carrying data at 250 Kbps, and user equipment is connected to it via RS232 interfaces.

Grant believes that the price of about £300 per network interface will give the ring a significant advantage over the much-publicised but expensive systems, while the data rate of 250 Kbps will support a large number of applications for links between terminals and computers.

Grant is lining up subcontract manufacture and distribution deals aimed at having the first systems available by the end of March. Development plans include building a library of routines to run on a variety of attached microcomputers, a filestore hard disc and a high-speed parallel interface to the network node) and a software system which will support online sales,



order input while producing invoices and packing documents at the same time.

Call set-up and data transfer routines have been running in micros including an Apple II, a Zilog MC2, a Newbury Newbrain and a Transam Triton to demonstrate the prototype.

Grant contests the argument that says a 10-Mbps rate is necessary to serve enough applications to stimulate high volume, and therefore cheap production.

"There is plenty of volume at our level of capability," he says. "I am not sure that standards on the ring are so important either, so long as you can make a low-cost device."

"It is in the conversation between the station which sets up the call and the device it is calling that there is a hole in the standards."

"Provided we get enough systems out in the field, we will see a de facto standard there. As we were involved in the production of the Basic language used on the Sinclair ZX80 and ZX81, our software is used by more people than anyone else's. And ICL is talking about making it their standard Basic."

As volume production and the use of integrated circuits bring down the costs of Ethernet, the costs of Multilink should come down too, he adds. "There is quite a lot of circuitry we could put in a ULA. The Americans have done a great deal of talking, but not much in practice."

Ferranti to market gate array designer

by Robert Parry

FORTY man-years of effort developing dedicated software for the design and testing of uncommitted logic arrays or gate arrays is to be made available by Ferranti to its customers.

Gate arrays like Ferranti's ULA families provide an increasingly popular route to LSI and VLSI circuits. As the devices become more complex they need more refined CAD tools to design the interconnection that allows the array of logic gates to carry out the required functions.

For an entry price of £37,500, Ferranti's ULA Designer gives complete control over ULA designs right up to manufacture in customers' own premises, while taking advantage of Ferranti's established design software. It is claimed to be the first CAD system designed specifically for the design of gate array circuits.

Hardware is based on a DRC PDP-11/23 mini-linked through telephone lines, under DRCnet control, to host computers at Ferranti's Manchester microelectronic design centre or in Scott's Valley, California.

Software allows entry of logic diagrams and cell layouts via a display, checking syntax of logic descriptions entered and the definition of test programmes.

Using the link to the Ferranti host computer, customers have access to software providing complete design verification, without needing their own large computer system - estimated to cost over £1 million in hardware alone.

We are not completely certain how many of these systems we will sell," said marketing director Bryan Down, but he estimated sales of 15 to 20 systems in Western Europe, with a larger number likely in the US.

Ferranti sees ULAs as the main part of its business and estimates it has 30% of the world market.

DOWN ... Ferranti has 30% of world market in ULAs.

Early retirement hope 'wishes thinking'

by David Craver

THE debate on the implications of technological change - which has put forward early retirement, a shorter working week, the creation of smaller firms, and a shift of resources to the service sector as solutions to technology's social and employment consequences - has been filled with "wishes thinking" and ill-informed assumptions", according to a report published by the Town Planning Department of South Bank Polytechnic.

In addition, it suggests that one in four of the elderly live on or near the poverty line. For an early retirement to be effective, a large increase in pensions would probably be necessary.

The report also finds no evidence that shorter working weeks have been responsible for job creation. But it does suggest that a shorter working week, by reducing overtime, would increase the number of "low paid" workers by half a million.

The report finds that small firms are "marginal employers, employing marginal labour often in marginal economic activities dominated by large enterprises". As such, they are expected to have little effect on unemployment caused by new technology.

Beyond Generalisation, Department of Town Planning, South Bank Polytechnic, Wandsworth Road, London SW1 2JZ, £2.00.

Seven programs introduced

THREE new microcomputers are catered for in a range of packages from Systematics International Microsystems. The suite of programs, called Financial Controller, consists of seven programs priced at £250 each.

The package is written entirely in Pascal - unusual in a suite of business applications.

NEWS BRIEF

NatSemi profits slump

NATIONAL Semiconductor, one of the largest US makers of chips and integrated circuits, has broken even in the last quarter of 1981. Profits slumped to just over \$1.2 million in the six months ended in December from about \$10 million in the corresponding six-month period of 1980. Falling prices and the strong dollar are blamed.

First turnkey

WATFORD-BASED bureau Hooper Systems and Technology has sold its first turnkey system in £88,000 sales order processing and stock control system based on a Prime 250/2, to Impeccable Controls to speed the handling of its 5,000-line product range.

New user group

A USERS' group has been formed for companies with Marconi Communications word and data processing systems. Founding members are Anthony Platt, assistant registrar of the University of Essex (0206 862286), and Ronald Watson, solicitor of Bedford-based Conquest Court & Binns (0234 56611). More than half of the nearly 200 users in the UK are said to have expressed interest in joining.

value to industry," he explained.

Simpleplot Mark 2 offers two-dimensional graph drawing facilities including linear logarithmic and normal probability scales, histograms, and plotting of polynomial functions. It runs on any system offering standard Fortran IV and will drive any graphic device.

A Pascal version, Psimpleplot, has also been developed, and BUSS is setting it up on ICL's Perg system.

The price of Psimpleplot is expected to be slightly more than Simpleplot, which costs £900 including one year's maintenance.

Perg printer

A GRAPHICS printer for the workstation is available following the announcement by the US Three Rivers Corp that its interface has been developed. It will manufacture and distribute the Perg in the UK. The desktop plain paper printer is priced at US \$15,000.

More minis

TEXAS Instruments has extended the high end of its DS590 range of minicomputers with three new models - the Models 16, 26 and 36 which use the DS80 and DS80 high-speed, large-capacity removable disc drives, with starting prices of £47,890, £57,320 and £67,000 respectively.

Net processor

ADVANCED Computer Techniques Corp (ACT) has announced a network processor based on Honeywell Level 6 minicomputer, which may be configured as a remote concentrator, cluster controller or message switch, and may serve as a node for a distributed computing system.

The seminars sought to shift the debate from what was seen as the largely business and industrial requirements on which the government has concentrated towards wider issues of general social and economic policy.

Beyond Generalisation, Department of Town Planning, South Bank Polytechnic, Wandsworth Road, London SW1 2JZ, £2.00.

Oil system

OIL refineries owned by Esso, Amoco, Gulf and Texaco are now using a planning and scheduling system from Seicon Computer Services, a subsidiary of BP. Offered on either a service bureau basis or to run on a user's own computer, the system is written in Fortran for IBM 3033 equipment.

The report finds that small firms are "marginal employers, employing marginal labour often in marginal economic activities dominated by large enterprises". As such, they are expected to have little effect on unemployment caused by new technology.

Beyond Generalisation, Department of Town Planning, South Bank Polytechnic, Wandsworth Road, London SW1 2JZ, £2.00.

Name change

TYLIN PEOPLE, the Tate & Lyle subsidiary which supplies contract computer staff to DfT departments in the group and to outside companies, has been renamed TLP. TLP is what is left of Tylin Management Systems, the Tate & Lyle computer business which was sold to LA Computer Services.

MICRO NEWS

EEC to provide £24 million for R&D projects

by Boris Sedacca

THE European Community is inviting proposals for research and development projects into microelectronics from companies in member States, and will provide support worth £24 million for 1982, the first year of a programme which will extend over four years.

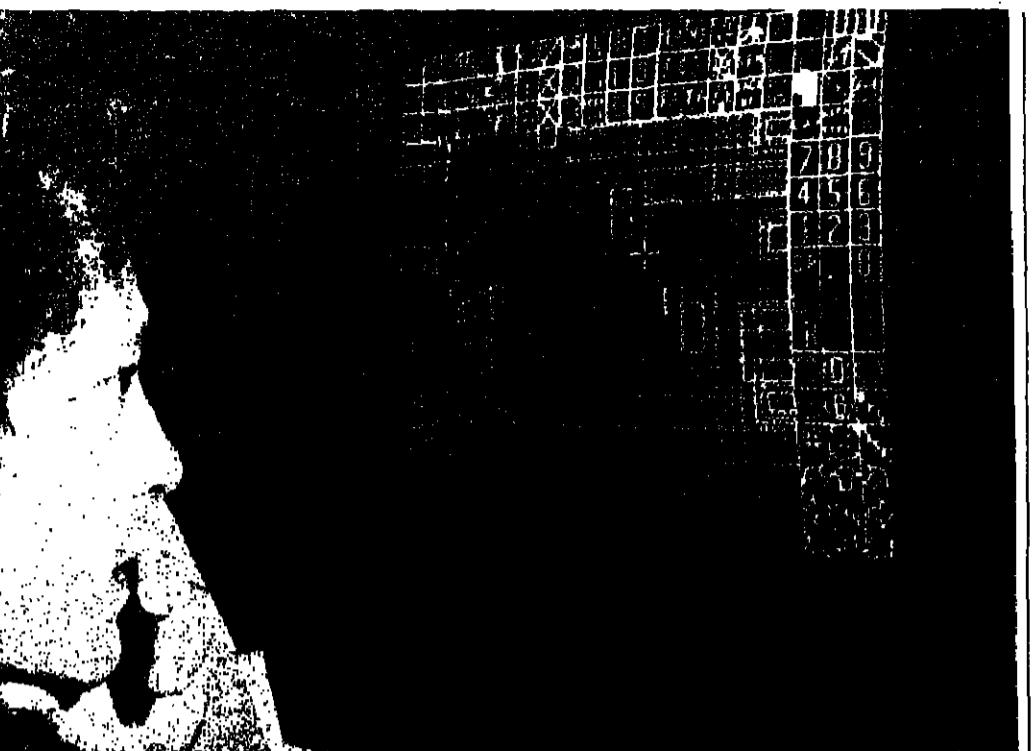
Projects eligible for aid are direct optical stepping technology, electron beam direct writing on wafers, plasma etching, testing equipment for integrated circuits and computer-aided design for very large scale integration.

The European Community appears concerned that it will be left out of these advanced fields of technology. It relies on imports to provide 80% of a European market for integrated circuits worth about £800 million a year, which means that existing European producers are not big enough to put up the necessary level of investment into

further £30 million, but no indication has now been given that the full £60 million will be provided.

A spokeswoman for the DoE would not comment on expenditure plans beyond the £24 million committed for the first year.

The European Commission



Computer aided design for very large scale integration is among the areas earmarked for support by the EEC.

hopes to raise the member States' share of the world production of integrated circuits to 12% by 1985 - still well below expected European demand, but representing a total sales increase of more than £1,000 million.

"We are taking in proposals during the year and decisions will be made by the end of the year as to who gets accepted. The money will then be paid out over the four years of the programme," she said.

The European Commission

of commands and data among devices on the loop at five Kbytes per second.

Commands are received and retransmitted by each device, but only acted upon by the specified device. An accessory poll feature allows users to write programs requiring a printer, for example, without having to know the address or location of the printer to be used.

The controller will automatically select an appropriate device on the loop.

To demonstrate HP's commitment to the idea of the interface loop, several divisions concerned with calculators, computers and instruments, will be bringing out HP-JL devices. Current offerings include a 131,000-byte digital cassette drive, a 24-column thermal printer, a fully programmable digital multimeter and a converter for building into equipment such as

variety of features. It has a programmable dot matrix liquid crystal display, 16K of user memory extendable to 6.6K and user-definable keys. The Basic version can handle two dimensional arrays, program chaining and graphics commands among other things.

An optional printer gives four-colour graphics, nine character sizes and plotting capability.

Marketing to educational users will be handled exclusively by Positron's first distributor, Piffen and George, a leading supplier of scientific equipment for education.

"We are very pleased that Grif-
fen has chosen the Positron as the
micro for education. It is putting a
lot of resources behind the promotion," says Peter Loftus, Positron's marketing director.

He adds that Positron is looking for similar associations in other market sectors.

Interface loop gives boost to hand-held systems

HAND-HELD computers from Hewlett-Packard have received a boost in capability with the release of an interface allowing HP-41C and HP-41CV devices to control and read data from instruments and peripherals.

Called the Hewlett-Packard interface loop (HP-JL), it uses two-wire cable to connect up to 961 devices in a serial loop, with up to 100 metres between devices. A master controller looks after traffic

measuring instruments to allow control through the loop.

An interface card for the Series 40 personal computers allows communication between the hand-held HP-41 and HP-85 or HP-83 personal computers. Applications seen for this include using the personal computer to store and analyse data collected in the field on the hand-held device.

Another new hand-held computer, Sharp's PC-1500, offers a

variety of features. It has a programmable dot matrix liquid crystal display, 16K of user memory extendable to 6.6K and user-definable keys. The Basic version can handle two dimensional arrays, program chaining and graphics commands among other things.

An optional printer gives four-colour graphics, nine character sizes and plotting capability.

Marketing to educational users will be handled exclusively by Positron's first distributor, Piffen and George, a leading supplier of scientific equipment for education.

"We are very pleased that Grif-
fen has chosen the Positron as the
micro for education. It is putting a
lot of resources behind the promotion," says Peter Loftus, Positron's marketing director.

He adds that Positron is looking for similar associations in other market sectors.

OPTIMEDIA Cabinets and Components

because you require more space in the years ahead

Carter-Jones congratulates

BARCLAYS BANK INTERNATIONAL

Winners of the 1981 British Squash Tournament

and invite all computer Weekly readers to

Wright Line Open Days at their

showrooms

DUNBLANE 1st February

LEEDS 2nd February

COVENTRY 3rd February

BATH 4th February

SUTTON 5th February

SOLOMONS 6th February

Video films displaying the Wright Line range

inviting and about Wright

The

Wright Line Division, Kington Road, Sutton, Surrey SM3 9QD

Tel: 01-644 4355 Telex 945959

The rental people who sell

MBS

MBS Rentals, 119/120 High Street, Eton, Berks SL4 6AN
Telephone: Windsor (0753) 552111 Telex: 644945
MBS Ltd, National Westminster Bank Buildings, 99 Brighton Street,
Windsor, Berkshire SL4 1JU
Telephone: Windsor 0753 552111 Telex: 644945

SALES	MONTHLY RENTAL INC. MAINTENANCE
£395	DEC VT100
£775	DEC VT101
£1,113	HP2621F
£772	TEXAS 7474 PRINTABLE
£772	NEWBURY 3800
£1,222	VOLKNER GRAF

Basic-Plus RTS users

BACmac the RTS Supercharger

from **ADOS**

BACmac is a simple-to-use, fully automated Basic-Plus to Macro converter/compiler, providing true compilation of Basic-Plus programs. BACmac is operative at over 50 sites worldwide providing users with increased power and performance.

Throughput/response problems?

Basic Plus is interpretive and therefore slow. BACmac, however, compiles your programs and thus dramatically improves execution speed. A user's program sorting 5,000 records using a virtual array workspace exhibited the following CPU usage . . . (times in CPU seconds):

BASIC +2	BASIC 2.RTS	CSPCOM 1076	Basic Plus 840	BACmac 350	TASK 201
100	100	100	100	100	100

Grow greater than 16K

The limits of 16K words of program area is restrictive.

BACmac can, up to a limit, produce runable task images from programs that will load into memory but exceed maximum available memory during execution. With BACmac, the user program area is up to 28K words (31K with RTS V7).

Defeat the pirates!

If you write in Basic Plus then you know that decompilation is a problem. BACmac converted programs, however, cannot be decompiled.

Powerful to use Performance Guaranteed

BACmac GUARANTEE ensures that you may receive a full refund by returning BACmac within 30 days accompanied by a demonstration that it fails to perform to the published Product Description.

BACmac can be purchased outright or leased over 36 months:-

Prices from
£1,395 or
£52 per month

Basic-Plus/RTS/RTII/DEC are registered trademarks of Digital Equipment Company.



Contact:
ADOS Limited
College House, 219 Edwards Road,
Ruislip, Middlesex, HA4 7AS
Telephone: 0895 781000

Racal doing well with half-year profits up 45%

DESPITE the prevailing gloom in British industry, communications company Racal provided a ray of welcome light with half-year profits 45% up on last year.

Chairman and managing director Sir Ernest Harrison told a gathering of City analysts and stockbrokers that the company expects to achieve a full year's turnover of £550 million, up 21% on last year's figure of £536.4 million.

At the same time he revealed that the company had improved turnover for the half-year by 26% to £303.5 million from last year's £240.6 million. Profits for the half-year were £38.4 million compared with £26.5 million at the halfway mark in 1981.

Within this strong performance, however, Racal-Milgo, the company's American offshoot which last year notched up sales of £134 million, suffered a severe dent in its profits as the result of a price-cutting war with Paradyne.

Sir Ernest said that the company had met the competition with across-the-board price cuts early in the year. Subsequently this position had changed as Racal-Milgo readjusted its prices.

Even here, though, there were problems. Racal has sold off the Decca TV company and is getting some cash in from the debtors which Racal retained.

Decca has been affected by the Ministry of Defence moratorium on defence contracts, but booming exports have contributed to the turnaround. However, the Decca small boat radar is still giving problems and the company is still trying to get the right products for this area.

Radio communications is about 31% of Racal's business and the company's frequency hopping tactical radio has now sold to more than 40 countries.

Sir Ernest was less happy about the past performance of the strategic radio products but he was able to predict that growth of the strategic radio business would be



HARRISON . . . Racal-Milgo profits were dented, but "performed better in second half".

about 40% this year. Sales of the tactical radios will total £140 million this year, he said.

On the legal side, the company is still locked in battle with Codex and is appealing the court judgment, which went against Racal. Sir Ernest said that some estimates as to the scale of damages had been exaggerated and that the judgment affected only a part of the business.

He also revealed that Racal had now decided to take legal action against Dutch giant Philips to try to obtain payments for the use Philips was making of Racal products.

In conclusion, Sir Ernest warned the government that if it backed the electronics industry, the country would face a future of ever declining standards. Electronics, he said, is the industry of the future.

Sir Ernest appeared confident the outcome would favour Racal.

Racal was once the chief European supplier of Time multiplexers, and Timplex is alleging that Racal used paid information to design its products.

And the falling pound has

Racal. Foreign exchange movements which had gone against the company last year had produced gain of £1 million this year.

In conclusion, Sir Ernest warned the government that if it backed the electronics industry, the country would face a future of ever declining standards. Electronics, he said, is the industry of the future.

Intel reports first drop in annual revenue

by Louise Keyhoe

INTEL, the fourth largest US semiconductor manufacturer, has reported a net income for 1981 of \$27.4 million, a drop of 72% on 1980.

The company's results also show a drop in annual revenue — the first yet for Intel. Revenues for 1981 were \$789 million compared with \$835 million in 1980.

This year Intel will introduce its first commercial system product, a small business computer. It will use its own microprocessor devices to make the computers and is currently setting up agreements with software companies to obtain marketing rights to business-oriented software.

To some extent, however, Intel has been protected by its systems business. According to chairman Gordon Moore, sales of microprocessor development systems and

CW SHARES TABLE

Date 14/1/82	London Stock Exchange	Price	14/1/82		Price	14/1/82	
			Stock	Crash		Stock	Crash
High	Low						
100	90						
101	91						
102	92						
103	93						
104	94						
105	95						
106	96						
107	97						
108	98						
109	99						
110	100						
111	101						
112	102						
113	103						
114	104						
115	105						
116	106						
117	107						
118	108						
119	109						
120	110						
121	111						
122	112						
123	113						
124	114						
125	115						
126	116						
127	117						
128	118						
129	119						
130	120						
131	121						
132	122						
133	123						
134	124						
135	125						
136	126						
137	127						
138	128						
139	129						
140	130						
141	131						
142	132						
143	133						
144	134						
145	135						
146	136						
147	137						
148	138						
149	139						
150	140						
151	141						
152	142						
153	143						
154	144						
155	145						
156	146						
157	147						
158	148						
159	149						
160	150						
161	151						
162	152						
163	153						
164	154						
165	155						
166	156						
167	157						
168	158						
169	159						
170	160						
171	161						
172	162						
173	163						
174	164						
175	165						
176	166						
177	167						
178	168						
179	169						
180	170						
181	171						
182	172						
183	173						
184	174						
185	175						
186	176						
187	177						
188	178						
189	179						
190	180						
191	181						

How audio-visual kit can 'liberate' tongue-tied students of technology

ONE of the many skills a systems analyst needs to acquire in order to do his job properly is an ability to communicate both with people within the DP department — programmers and operators — and with those outside it, such as users and providers of information, and those unconnected with the company, including consultants and hardware and software manufacturers.

Written communication takes many forms, including report writing, letters, papers, operating instructions, job specifications, system specifications, contracts, and appreciations of equipment and packages.

Oral communication is for many people more difficult, as it requires more interaction and flexibility on the part of the communicator, whether he is talking on the telephone, interviewing a user, presenting a new system, explaining a point to a programmer, or answering questions. It also presents problems to those trying to teach oral communication techniques in that students often believe that their appearance and delivery are quite different from what we perceive them to be.

To try to overcome this problem, at City University have built into our MSc and Diploma syllabi a large element of communications work using audio-visual techniques.

We use these techniques primarily for interviewing exercises. We start the year by asking each student to talk on any subject for five minutes, and by filming the result on to video. This has several advantages: students see and hear themselves, often for the first time, without the additional problem of having to interact with someone else; we often discover that students who may be tongue-tied on a technical subject are fluent and interesting about a

hobby and this gives us something to build on — and it helps to overcome any awe of cameras that there may be.

We usually operate this session with two academic staff and about six students, and each session occupies an afternoon, so that as we use the studios for two afternoons a week and have about 30 students the whole exercise is completed within three weeks. We record all six students and then play them back, discussing each one as we go.

The next exercise is a initial interview with a user. We have a number of briefs prepared for the students giving short introductions to different imaginary interview situations, and one of us role-plays while another assesses the interview. These interviews are usually about 10-15 minutes, and students have to deal with a variety of situations — users who are hostile, or quiet and withdrawn, or overtly interested in the internal political effects of computerisation on their department, or helpful but ignorant, or just plain scared.

The interviews are assessed on how well the interviewer dealt with the situation and how flexible he was in adjusting his questions to the reality of the interviewee. We usually get through only four of these in an afternoon, so students have a lot of time to discuss any difficulties they encountered. The beauty of the video of course is that we can play the tape through several times to emphasise certain points, and we can keep tapes for nine months to show students at the end of the year how much they have improved.

The next exercise is a fact-finding interview of 20 minutes. Students this time are assessed on their ability to obtain sufficient relevant information in the time allowed, and on their accuracy of recording it, as well as on personal

communication techniques. We have had several students who, faced with an interviewee determined not to be helpful, have resorted to threats — a mistake it is better to make in the studio than in a job situation! They have been so appalled generally by the sight of their own aggression that such a problem does not recur. For this exercise we work in groups of three students and two staff.

Several students, faced with an interviewee determined not to be helpful, have resorted to threats — a mistake it is better to make in the studio than in a job situation

We then have a group interview where several students are interviewing one person, and we see how they overcome the problems of overlap and omission, and how well they utilise the advantages of not having to take notes at the same time as asking questions. On this playback students are frequently amazed to see that they were either glaring fiercely at one of their number because they felt he was overrunning his time, or staring idly out of the window while someone else was asking questions.

The next exercise involves role-playing by students, not staff, who are merely assessing. This is a counselling interview with various briefs — a DP manager discussing with a systems analyst how to deal with a new application, a chief programmer calling in a member of

Marilyn Kennedy-McGregor lectures in systems analysis as part of the City University business systems analysis team.

his team to question his erratic timekeeping, a DP manager trying to deal with the career problems of one of his staff.

The students can then use the studios for any special techniques or situations they want to practise. Often, as the year draws to a close, students like to make up their own situations to influence the term.

What will happen to the

products, the Ricoh word processor and daisywheel printer and the Unicam shared-logic word processor, has yet to be worked out. So

the future of dealership agreements abroad and redundancy terms for staff.

So what went wrong with the rescue, which was to have been Gestetner's big chance to get into the office systems business? It is clear that Nexus' doom was sealed by the same thing that largely brought about its serious trading losses: the agreement with Logica, maker of the 2200, that was part of the original scheme to set up Nexus in 1979.

The principal income that Nexus was to have in its early years was from sales of the 2200. Yet this machine, first exhibited in April 1980, was not really ready for the market until November 1981.

All this time, while Nexus was losing money, Logica was happily making it, charging Nexus on a cost-plus basis for development.

The one thing Gestetner was not prepared to countenance was getting itself into a similar position, and it made it clear from the start that it would have nothing to do with Logica. The assumption was that since Nexus had paid for the

Marilyn Kennedy-McGregor

development of the 2200, rights to the design remain with Nexus and BTG, but the continuation of the same contract, that this was not the case.

Gestetner then offered to

the 2200 rights and the ac-

turing operation complete,

Logica was on the verge of

sudden closure that no

could be found to sell the

Then ICL appeared

surprise, happy to leave the

partner's offer suddenly in

the rest of the world.

The people at Nexus

helplessly by all day

going on, unable to influence

death of the company at the

unable to influence the tem-

birth.

The problems impos-

Nexus were compounded by

of judgement, such as calcu-

lating the amount of

involved in converting the

multiprocessor for use as a

systems, and giving selec-

tionary guarantees only if

they had almost nothing to

A final touch of fate was

to the tragedy of Nexus

Office of Fair Trading in Ju-

1981 circulated copies of

contract with Logica to re-

other firms, asking whether

clusivity clauses were unf-

01 I seemed to be blifing

were that this was going to

Nexus' commercial secu-

competitors!

Nexus may still live on

shape of its consultancy de-

unaffected by the collapsed

product company. It is time

to learn here — that they

are good at telling other pe-

ople to do things but not al-

ways doing it themselves?

In any case, Nexus was

an interesting experiment, but

part is that we will never

whether, in the absence of

extraordinary catastrophes, it

have worked.

Rory John

IN A SURVEY IN WHICH MEMBERS

OF THE PUBLIC WERE ASKED TO

THE CLASSES OF COMMERCIAL ROAD

RANGING FROM DISTANT TO NEAR

TO 150-TON EARTH MOVERS, THE

PARTICIPANTS DESIGNATED AN

PHOTOGRAPH AS A JUGGERNAUT.

AND THE HARSHIPS OF WINTER

HAVE STARTED A NEW BRAND OF ONE-

UPMANSHIP THAT MAY BRING CYNICAL

SIMILES AT THE NEXT PAY ROUND.

RINGING AROUND DP ESTABLISHMENTS, DEVOID AS USUAL OF THE

PERSON I WANTED TO SPEAK TO OR MY

SECOND AND THIRD CHOICES, I FOUND

THAT THE EXCUSE FOR THEIR ABSENCE

HAD GONE UPMARKET.

AND THE HARDSHIPS OF WINTER

HAVE STARTED A NEW BRAND OF ONE-

UPMANSHIP THAT MAY BRING CYNICAL

SIMILES AT THE NEXT PAY ROUND.

MINDLESS!

BY RORY JOHN

Icy train of thought

ONCE again, the British weather appears to have taken the country by surprise. The sheer blizzard of snow, storms and freezing temperatures in the middle of winter has resulted in blocked roads and the declination of rail services.

But the great British stiff upper lip triumphs in the face of adversity. While attempting to return to my country retreat on a particularly unpleasant Friday evening, it did my heart good to see that the commuting hordes were unaffected by the singular failure of British Rail to supply their London trains.

And the hardships of winter have started a new brand of one-upmanship that may bring cynical similes at the next pay round.

Ringing around DP establishments, devoid as usual of the person I wanted to speak to or my second and third choices, I found that the excuse for their absence had gone upmarket.

Instead of being "tied up" in interminable meetings from which he or she will ring back, every other manager is "stranded on his farm".

Next to the playful microsatellite minicomputer, the workstation screen displaying the message ICL ME29.

Perhaps the fauna software isn't ready yet.

Cutting out the rubbish

SAVINGS of £70 million on the £700 million annual bill for employing Britain's dustbins could be made according to a computer model built by the independent Local Authorities' Management and Computer Committee (LAMC).

Does this mean that LAMC considers its model too complicated for most trade unions to comprehend? Or, that the unions concerned believe that the two different packages perform their calculations in a logical manner?

I always thought that computers produced more rubbish than they helped shift.

Alan Simpson

10 YEARS AGO

From Computer Weekly of January 20, 1972

PRICE reductions of between 20 and 25% have been made in the UK for the NCR 500 visible record computer, of which more than 500 systems have been sold since it was introduced in 1971.

Installation training programs should be as important as main-

tenance as well as sales collection.

John D. Thompson

Editor, Computer Weekly

London SW1

Telephone: 01-580 2222

Fax: 01-580 2223

E-mail: cw@btconnect.com

Telex: 837 222 CWL

Internet: <http://www.btconnect.com/~cw/>

WWW: <http://www.btconnect.com/~cw/>

FTP: <http://www.btconnect.com/~cw/>

File Transfer Protocol: <http://www.btconnect.com/~cw/>

Eric Watson takes over this week's page, and exhorts programmers to take a pragmatic approach to their work

Choose your language with care if Britain is to keep its place

IT is almost impossible to open any computer journal these days without coming across one or more letters or articles either praising some particular, generally new, computer language or denigrating an old one.

The general line followed is to state that the new language facilitates structured programming, presumably in contrast to the amorphous programming which most of us produce, and allows the presumably happy, programmer to do various things in a more elegant way than was possible with the old fuddy-duddy languages.

With respect, I suggest that this is a completely wrong approach. Indeed the slavish adherence to this, essentially academic, approach in the British computer world is probably the main reason why American computing, which was behind us in the late Forties, caught up and passed us in the Fifties, Sixties and Seventies.

In the sterner times in which we live today a more practical approach is needed if we are not to fall even further behind. No one computer language can satisfy all needs, any more than a single type of motor vehicle can satisfy all transport needs.

The lay user will select a language which allows him to start producing useful programs in the shortest possible time. The professional programmer will choose a language to fit the problem and the equipment he has.

Both will, if they are wise, seek languages which enable them to concentrate on their problems, rather than on devising elaborate programs whose purpose, that of producing results, is too often neglected in the search for intellectual stimulation.

In the field of programming, as in most others, it is better to make good use of few tools rather than waste time and effort in acquiring techniques, most of which will

never be needed.

The question of the minimum knowledge which is required before a useful program can be written is, I believe, fundamental in judging the value of a language. It is also one of the most neglected.

In assessing what may be called the "learnability" of any language it is necessary to consider both the verbosity of its statements and the amount of knowledge required before a program can be written at all. Otherwise it would be impossible to make a valid comparison between, say APL and RPGII.

The former, as we are often told, produces programs of quite astonishing brevity. This is true — the amount of pre-knowledge required before any APL program can be written is likely to prove daunting to anyone without a good grounding in mathematical symbolism.

Programming in RPGII, on the other hand, is likely to lead to physical exhaustion, owing to the large amount of textual material to be

entered, the amount of mental effort required being small.

The suitability of any language for a particular user will also depend on the facilities he or she requires. This was recognised in earlier days by the classification of languages as either "scientific" or "commercial". Unfortunately this wholly sensible practice seems to have been abandoned recently in favour of a policy of asserting that the latest wonder language is better in every respect than anything which preceded it.

I would suggest that the time has come when, instead of pursuing this sterile policy, those interested in improving the quality and quantity of computer usage should work towards improving the learnability of computer languages, by cutting out unnecessary complex constructs, classifying languages precisely according to the fields in which they are most efficient and aiming for conciseness in writing by throwing more

statements, the simple assignments statement, and the rule the variable names will be sufficient. In Cobol it will be necessary to know the names and functions of the four divisions, while in APL like languages the whole bunch of type declarations, pointer beginning and end and return termination must all be named first.

I appreciate that once all knowledge has been acquired it is possible to carry out all non-trivial calculations without further factual information. However, it is of little comfort to novice user who has to decide whether to do this wonderful thing. The availability of information of this nature before the user makes his choice will reduce the number of dissatisfied users who help avoid the situation, which happened too often in the past whereby new features have been added to a language to satisfy the needs of those who should have been using it in the first place.

Similar considerations apply to the verbosity of a language. On again the simple addition program will supply a measure of its future and serve to direct the user towards the language most suitable for his needs. The final step, however, is to features of the language, it is generally done well enough already.

The steps I have suggested require time and effort. Furthermore they will require a more professional approach to documentation of each language than has generally been adopted in the past. This is no bad thing.

As to the effort required, it would suggest that this would considerably less than that currently expended in making largely unsubstantiated claims for most of the languages currently on offer.

As an initial approach it is useful to consider the classic program which reads in two numbers, adds them together, and prints out the result. In a language such as Basic knowledge of the input and output

of the work on hardware, which is cheap, and less so to the humanware which is expensive.

What, then, are the steps which should be taken in either choosing or developing a language? I suggest that they are:

1. Define the area of work in which the language is required to be efficient.
2. List the minimum items of knowledge which must be acquired before any program, even the most trivial, can be written.
3. Provide a measure of the verbosity of the language, that is the number of characters which must be entered in order to produce a useable program.
4. List the particular features which the language is required to possess.

The first step, defining the area of work, should not present too much difficulty in principle.

The preliminary studies which led eventually to the development of Ada provide a useful example of what needs to be done, although I would not suggest that so detailed and exhaustive an effort is needed in every case. The second step, listing the minimum knowledge which is required before any program can be written, is not so difficult as it may appear.

As an initial approach it is useful to consider the classic program which reads in two numbers, adds them together, and prints out the result. In a language such as Basic knowledge of the input and output

CII and Honeywell Bull, with the blessing of President Giscard d'Estaing who provided a downy of 1.2 billion francs (£120 million) in subsidies and guarantees of four billion francs (£40 million) in State orders over the next four years.

The objective was to help the new firm become a competitive venture.

By 1980 it appeared that the target had been met. CII-HB

were turned towards production agreements with the United States. Jean-Pierre Boussonne, chairman of the Thomson-Brandt holding was hoping to make a technological and sales pact for minis with SEL across the Atlantic.

But Industry Minister Pierre Dreyfus has written to Boussonne vetoing the arrangement.

Dreyfus' aides say: "What we need now is a coherent development plan based on what French industry has to offer." That means the efforts of CII-HB and Thomson in conjunction with the other half-dozen French manufacturers of minicomputers; but a merger between Thomson-CSF and Compagnie Generale d'Electricité.

The major computer companies earmarked for nationalisation are CII-Honeywell Bull with its parent company, the conglomerate Saint Gobain-Pont à Mousson, Thomson-CSF, and Compagnie Generale d'Electricité.

Matra was taken over at the end of last year by the acquisition of a controlling stake in its equity by the State.

But the takeover of CII-Honeywell Bull is likely to be delayed while negotiations are completed with Minneapolis-based Honeywell which has a 47 per cent holding in the venture. The French government hopes that, after receiving cash compensation, Honeywell will continue to cooperate as both a commercial and

Negotiations are also afoot to ensure that Olivetti, with its vast world market network, and Logabax, the French peripherals firm which was rescued from bankruptcy by Olivetti last summer, play active roles in the development of mainframes and terminals.

The government will give special attention to Matra's computer activities. Matra-Informatique, which specialises in management mini systems, doubled its turnover between 1977 and 1980.

It is particularly strong in sales to industrial groups, banking, retailing and insurance firms.

Matra has now branched out into automatic office equipment and into France's electronic telephone directory programme. It is selling 100,000 terminals for this purpose in the US through Tymshare and 1,500 in Brazil.

Another computer technology firm which comes under the nationalisation axe is Transac-Alcatel, a subsidiary of the vast Compagnie Générale d'Electricité.

Transac-Alcatel has registered a steady annual growth rate of 25 per cent over the past five years. It is

Europe's biggest manufacturer of automatic bank note dispensers and cash points and has either built or taken orders for 3,500 units. It controls 30 per cent of the French market in smart and transaction terminals, of which it has made 70,000 units.

Nationalisation will be accompanied by a number of top-level management changes in the French computer industry. At CII-HB Maxime Bonnet is expected to be called to step down from the chairmanship and make way for Gerard Théry.

Théry headed the French telecommunications authority under President Giscard d'Estaing. Michel Hug, a brilliant engineer who headed the equipment division of Electricité de France, the publicly-owned generating authority, is likely to succeed Boussonne at Thomson.

President Mitterrand, who opened France's National Science Symposium in Paris a few days before the nationalisation process was due to be completed, is promising his encouragement to a revitalised computer industry. He said scientific research, which accounts for two per cent of France's gross national product this year, will rise to two-and-a-half per cent by 1985.

The state's civil research budget will rise annually by 17.8 per cent during this period.

Finance is our Business

Lombard believe in people doing what they do best.

We realise that controlling increasingly tighter budgets is becoming an ever more demanding and exacting science.

Accurate forecasting together with the need to release valuable capital requires the right choice of funding options.

Finance and leasing are what we are best at.

If you'd like to know more about the possibilities of leasing equipment, plant, vehicles, or about the options available, call in at your local Lombard Branch Office or ring 01-409 3434, and ask for the Leasing Manager.

Lombard
North Central

PLC
Head Office: Lombard House, Gt. George Street, London W1A 1EU.
Regional Offices: Birmingham, Bristol, Edinburgh, Glasgow, Liverpool, Manchester, Newcastle, Nottingham, Southampton, Teesside, Welshpool.

PUZZLER

SOME years ago we had a whole series of divided alphabets appearing in the columns, many of them contributed by readers. Here is one I didn't mention at the time.

ABCDEFJ JKLM PQRS TUWV Y
HI NO S X Z

On what (non-alphabetical) basis have the letters been divided? See page 46 for solution.

COMPUTER WEEKLY, January 21, 1982 17
Mitterrand plans to cut Honeywell share of CII-HB — at a cost to taxpayer of \$180 million... Jack Gee reports

Challenge to foreign firms as French set takeover date



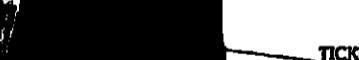
BOUSSONNIE ... Soon to be replaced.



BRULE ... Unceremoniously sacked.



PROTECTIVE HELMET
BOC



SHIRT & SUIT
MARKS & SPENCER



TICKET
ORION AIRWAYS



TAN FROM
HORIZON HOLIDAYS



CHEQUE BOOK
NAT WEST BANK



TA
L
C
O
M
S
E
R
T
H
E
N
S
C
M
E
R

We believe they find it reassuring that we are a UK company and one of the largest in the business.

It does help.

Ring Paul Lakeland on 061-832 9967 for further information.

I would like to know more about NSC's software packages. Please send me details on:

No Sel 2 (Real Time)
 ABCD EFGHIJKLMNOPQRSTUVWXYZ
 No Pads
 No Mats
 No Inv
 No Stock

(TICK AS APPROPRIATE)

NAME _____

COMPANY _____

ADDRESS _____

POSTCODE _____

NSC
PACKAGES

NORTHERN SOFTWARE CONSULTANTS LIMITED
43 CARNARVON STREET, MANCHESTER M3 2EE

statements, the simple assignments statement, and the rule the variable names will be sufficient.

In Cobol it will be necessary to know the names and functions of the four divisions, while in APL like languages the whole bunch of type declarations, pointer beginning and end and return termination must all be named first.

I appreciate that once all knowledge has been acquired it is possible to carry out all non-trivial calculations without further factual information. However, it is of little comfort to novice user who has to decide whether to do this wonderful thing. The availability of information of this nature before the user makes his choice will reduce the number of dissatisfied users who help avoid the situation, which happened too often in the past whereby new features have been added to a language to satisfy the needs of those who should have been using it in the first place.

Similar considerations apply to the verbosity of a language. On again the simple addition program will supply a measure of its future and serve to direct the user towards the language most suitable for his needs. The final step, however, is to features of the language, it is generally done well enough already.

The steps I have suggested require time and effort. Furthermore they will require a more professional approach to documentation of each language than has generally been adopted in the past. This is no bad thing.

As to the effort required, it would suggest that this would considerably less than that currently expended in making largely unsubstantiated claims for most of the languages currently on offer.

As an initial approach it is useful to consider the classic program which reads in two numbers, adds them together, and prints out the result. In a language such as Basic knowledge of the input and output

CII and Honeywell Bull, with the blessing of President Giscard d'Estaing who provided a downy of 1.2 billion francs (£120 million) in subsidies and guarantees of four billion francs (£40 million) in State orders over the next four years.

The objective was to help the new firm become a competitive venture.

By 1980 it appeared that the target had been met. CII-HB

were turned towards production agreements with the United States. Jean-Pierre Boussonne, chairman of the Thomson-Brandt holding was hoping to make a technological and sales pact for minis with SEL across the Atlantic.

But Industry Minister Pierre Dreyfus has written to Boussonne vetoing the arrangement.

Dreyfus' aides say: "What we need now is a coherent development plan based on what French industry has to offer." That means the efforts of CII-HB and Thomson in conjunction with the other half-dozen French manufacturers of minicomputers; but a merger between Thomson-CSF and Compagnie Generale d'Electricité.

The major computer companies earmarked for nationalisation are CII-Honeywell Bull with its parent company, the conglomerate Saint Gobain-Pont à Mousson, Thomson-CSF, and Compagnie Generale d'Electricité.

Matra was taken over at the end of last year by the acquisition of a controlling stake in its equity by the State.

But the takeover of CII-Honeywell Bull is likely to be delayed while negotiations are completed with Minneapolis-based Honeywell which has a 47 per cent holding in the venture. The French government hopes that, after receiving cash compensation, Honeywell will continue to cooperate as both a commercial and

Negotiations are also afoot to ensure that Olivetti, with its vast world market network, and Logabax, the French peripherals firm which was rescued from bankruptcy by Olivetti last summer, play active roles in the development of mainframes and terminals.

The government will give special attention to Matra's computer activities. Matra-Informatique, which specialises in management mini systems, doubled its turnover between 1977 and 1980.

It is particularly strong in sales to industrial groups, banking, retailing and insurance firms.

Matra has now branched out into automatic office equipment and into France's electronic telephone directory programme. It is selling 100,000 terminals for this purpose in the US through Tymshare and 1,500 in Brazil.

Another computer technology firm which comes under the nationalisation axe is Transac-Alcatel, a subsidiary of the vast Compagnie Générale d'Electricité.

Transac-Alcatel has registered a steady annual growth rate of 25 per cent over the past five years. It is

the man in the street.

Your next-door neighbour.

Mr. Everyman.

He is constantly using the services of those who use our services.

The people he patronises have all been patronising NSC for years.

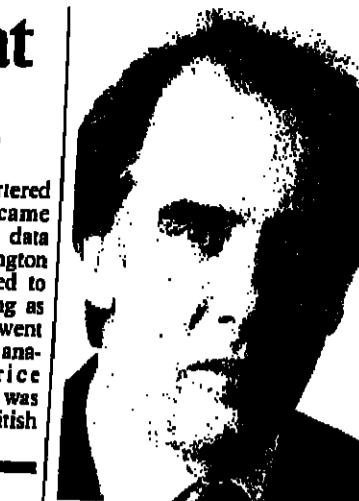
They know we have the software packages they want, including our famous real time sales ledger that can save so much time and money.

It's the only Real Time Sales Ledger installed under CICS, DL1 and IMS for the IBM 4331.

Finance chief MD at Computer Supplies

SCOTTISH accessory company Computer Supplies has appointed its finance director Bernard Sheridan as managing director. He takes over following the death of founder Roger Hundleby last October.

Sheridan has been with the company since August. He had previously spent five years as a management consultant manager at Price Waterhouse Associates.



SE Labs boss

SE LABS, Thorn EMI's £20 million subsidiary, has appointed Charles Cales as managing director. Cales was managing director of Thorn Electroacoustic Instruments, Nuclear Enterprises.

Cales has been with EMI since 1953, holding senior financial management positions in major subsidiaries between 1976, he was AD of Minerva, EMI's fire and security company. He has been financial director of Industrial Electronics.

IT is the middle of the night and you have just spent two hours with a bleary-eyed analyst trying to resolve a problem in payroll. You walk into the machine room to try yet another recompilation.

Suddenly chaos breaks out all around you – bells ring, people shout and run about in an extremely disorganized manner. You look under the false floor and inside peripherals for the cause of the commotion – but suddenly realize that you are the cause. Concealing your lighted cigarette, you back nonchalantly out of the room hoping that no-one will notice that it was you who set off the fire alarm.

Another popular source of fires is accumulated waste paper. The amount of stationery used in a machine room can be measured in tons per day. Not all of this is neatly boxed and despatched to users – a large amount is scrap or carbon. The area where multi-part paper is decollated is usually outside the machine room (or at least should be on environmental grounds) – and it is quite common to see someone decollating while smoking. Where large amounts of paper are being thrown away, the bins should be emptied regularly to avoid unnecessary risk.

The corrosive deposits left by the acidic smoke were sufficient to incur a loss of over £1 million.

The potential loss caused by a fire in a computer installation is far

greater than the mere capital loss involved with the hardware. The disruption of the company's business can be out of all proportion to the physical damage.

But how do you detect a fire before any lasting damage is done? There are four main types of detector in common use.

The ion chamber particle detector detects the minute particles known as aerosols which are always produced by a fire. Ion chamber detectors can respond to even the invisible particles produced by a clear-burning fire, provided their density is high enough.

If you are one of those who consider fire protection to be a waste of time and money, read on.

ON Sunday August 2, 1970, shortly after 2pm, the fire station at Letchworth, Hertfordshire received an emergency call from an ICL factory in the town. A fire had been discovered in the DP area on the ground floor where the computer room and tape library were located.

Two people working in the building had passed the point where the fire started 13 minutes earlier and had noticed nothing. When the fire brigade arrived, the ground floor was well alight.

Entry to the machine room was via an automatic sliding door which failed in the open position shortly after the fire started, thus allowing the blaze to spread rapidly. The ceiling tiles, secured on wooden battens, were combustible.

The rapid spread was also aided by the presence of a two-litre plastic container of isopropyl alcohol, a considerable quantity of paper on desks and in the paper store, and hardboard partitioning in the adjoining offices.

The heat detector reacts to sudden rises in temperature or abnormal levels of heat. This type of device would be used rather than an ion chamber detector in environments where the presence of smoke or fumes is a normal state of affairs. But it is rarely used in computer environments.

Air conditioning heating stages

can also provide a fair amount of burnt dust when first switched on after a long spell of hot weather.

The heat detector reacts to sudden rises in temperature or abnormal levels of heat. This type of device would be used rather than an ion chamber detector in environments where the presence of smoke or fumes is a normal state of affairs. But it is rarely used in computer environments.

The fabric of the hardware also provides special problems. The most commonly used electrical insulator, PVC, gives off hydrogen chloride when burnt. This is not only toxic but can cause extensive corrosive damage to edge connectors and electrical contacts. And it was this corrosion that did the damage at the Swiss Bank installation.

The only experience I have had of false alarms from this type of detector was caused when the machine room air conditioning was switched off for a time, allowing the dust normally held in place in the ducting by the airflow to fall from its resting place to be blown into the detectors when the air was turned on again.

Air conditioning heating stages

can also provide a fair amount of burnt dust when first switched on after a long spell of hot weather.

The heat detector reacts to sudden rises in temperature or abnormal levels of heat. This type of device would be used rather than an ion chamber detector in environments where the presence of smoke or fumes is a normal state of affairs. But it is rarely used in computer environments.

Although false floors and ceiling voids provide excellent air conditioning ducts, they also house electrical equipment which may well provide a fire risk. One of the commonest causes of fires in computer rooms is over-heating ballast resistors in fluorescent light fittings. Dust build-up in the voids can also provide a good ignition point as well as helping a fire to spread.

Photo-electric smoke detectors

respond only to visible smoke particles. Many fires begin with the source smouldering rather than blazing. This type of fire can be

caused in its early stages by photoelectric detectors sensing the smoke or visible vapour before flames appear. They are generally used in cable ducting or floor and ceiling voids.

The most well-known substance used to put out fires is carbon dioxide.

CO₂ has been used for fire fighting for over 50 years. It is a colourless, odourless gas, heavier than air, and achieves its extinguishing action by displacing the oxygen in the atmosphere so that combustion can no longer be supported. Unfortunately, neither can breathing. Stringent safety measures must be employed to assure the safety of employees when CO₂ is used.

Less well-known but more commonly used are halogenated hydrocarbons. Halons do not depend on oxygen dilution or cooling to extinguish fires, but directly inhibit the flame reaction. Halons are non-toxic, but the extinguishing action produces by-products which are extremely irritating. For

this reason it is wise to provide similar personnel protection mechanisms to those employed with CO₂ systems.

The two main halons used in fire fighting are Halon 1301 (bromotrifluoromethane) and Halon 1211 (bromochlorodifluoromethane). Halon 1211 is perhaps to be preferred due to its slightly sweet smell which allows detection in the event of a leak. Halon 1301 is both odourless and colourless.

Once you have a comprehensive fire detection and extinguishing system, it is all too easy to forget about routine maintenance. The system may not be needed for 15 or 20 years, and unless it has been regularly checked and maintained, may not perform when needed.

But no matter how good your detection system, you are still at the mercy of your employees. In 1965 a firm of engineers in Glasgow lost their computer installation in a fire started by the works fireman.

OP SPOT

So you thought that fire protection was a waste of time and money . . .



DISASTER

were not running at the time, and the temperature and humidity did not rise appreciably.

It is unfortunate that many of the materials used to make ceiling tiles are flammable. The most common, expanded polystyrene, also gives off large amounts of dense, toxic smoke.

Another popular source of fires

is accumulated waste paper.

The amount of stationery used in a machine room can be measured in tons per day. Not all of this is neatly boxed and despatched to users – a large amount is scrap or carbon.

The area where multi-part

paper is decollated is usually

outside the machine room (or at least should be on environmental grounds) – and it is quite common to see someone decollating while smoking. Where large amounts of paper are being thrown away, the bins should be emptied regularly to avoid unnecessary risk.

Infra-red flame detectors react to the flickering radiation produced by flames. Steady sources such as electric fires and computer equipment are ignored. Applications for this type of device are large open plan offices or warehouse environments.

Having discovered your fire, how do you put it out?

For computer suites where there is a high concentration of equipment requiring protection, a flood system, either in the floor void or the entire room, is by far the most satisfactory way of safeguarding the installation. An automatic system can react far more quickly and effectively than a disorganized team of enthusiastic amateurs wielding portable extinguishers.

Large cylinders of extinguishing

agent

can be stored in a room adjacent to the area to be protected and triggered by a system of detectors of the types listed above.

The most well-known substance used to put out fires is carbon dioxide.

CO₂ has been used for fire fighting for over 50 years. It is a colourless, odourless gas, heavier than air, and achieves its extinguishing action by displacing the oxygen in the atmosphere so that combustion can no longer be supported. Unfortunately, neither can breathing. Stringent safety measures must be employed to assure the safety of employees when CO₂ is used.

Less well-known but more commonly used are halogenated hydrocarbons. Halons do not depend on oxygen dilution or cooling to extinguish fires, but directly inhibit the flame reaction. Halons are non-toxic, but the extinguishing action produces by-products which are extremely irritating. For

the Urwick Group from ICL as a computer consultant. Others are Bill White, who becomes director of operations in Scotland and Hugh Duncombe who is responsible for liaison to engineering organisations in Southern England. He first

joined the Urwick Group from KDG Instruments.

■ George Prince has been appointed production manager at Sigma Electronic Systems. He was previously general works manager with KDG Instruments.

■ David Jones has been named computer services executive at S&W Berisford. He will be responsible for computing and telecommunications.

■ Joe Culp has been named president of telecommunications for Rockwell International's commercial electronics operations.

DIARY

FEBRUARY 1

Office Automation, fact or fiction? BCS Hampshire branch, Simplot House, Sheffield. 7.30.

Microcomputers in a business environment. BCS Suffolk branch, College of Higher and Further Education, Rope Walk, Ipswich. 7.00.

FEBRUARY 2

CCAB – computer audit guidelines. BCS Auditing by Computer Group, Connaught Rooms, Great Queen Street, London. 4.30.

Commercial application packages. BCS Kent branch, Kings Head Hotel, High Street, Rochester. 7.30.

The computer and its environment. BCS NW London branch, Railway Hotel, London. 7.45.

Occupational testing. IDPM Birmingham branch, Wheatsheaf Hotel, Coventry Road, Sheldon, Birmingham. 7.30.

FEbruary 9

The electronic office. BCS Croydon.

FEBRUARY 3

Secure systems. BCS Edinburgh branch, Mountbatten Building, Heriot-Watt University, Grassmarket, Edinburgh. 5.30.

BBC computer literacy project. BCS Humberside branch, Hull College of Higher Education. 7.30.

Visit to IBM Greenock. IDPM Scottish branch. 7.30.

Information technology – the next five years, current developments and their implications. IDPM W. London, Oxford branch, Bull Hotel, Gerrard Cross. 7.30.

February 10

Exotic graphics. BCS Belfast branch, Department of Computer Science, QUB, Botanic Gardens, Belfast. 2.30.

Kidney Unit visit. BCS Bristol branch, Contact PD Hemming, Engineering Computer Centre, Royal Engineers, Filton, Bristol. Tel: 092871 ext 904.

FEBRUARY 16

Exotic graphics. BCS Sussex branch, Training Centre, Excess Insurance, Hill Barn Lane, Worthing. 7.00.

Staffing and training in data processing. IDPM Sussex branch, Training Centre, Excess Insurance, Hill Barn Lane, Worthing. 7.00.

February 19

The electronic office. BCS Croydon.

FEBRUARY 23

ADD GRAPHICS

WITH THE LOW COST HIGH QUALITY SOLUTION

£1250.00
per monitor

VTI 100 GRAPHICS DISPLAY

available with plain paper graphics print facility

• Software compatible

• Light pen option

• Retains VTI 100 features

• Supports graphics packages

• In Stock Now!

Price Ex VAT

PHONE US FOR A QUOTE

PLESSEY PERIPHERAL SYSTEMS

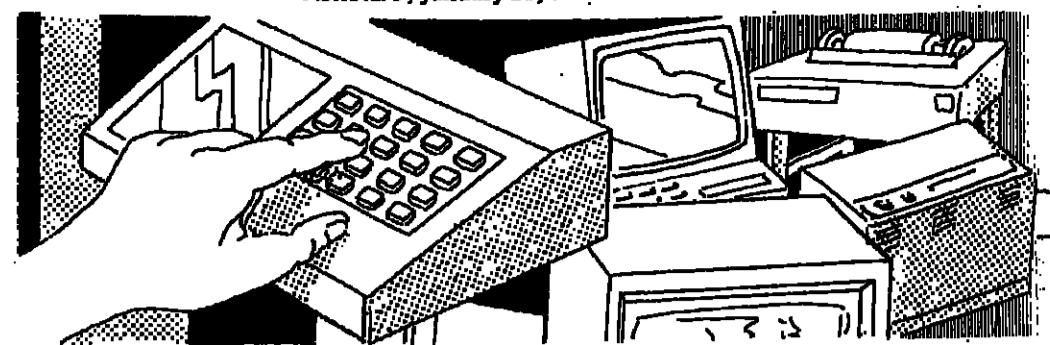
Plessey Peripheral Systems Limited, 3 Harrowden Road,

Banbury, Northamptonshire NN4 0RR

Tel: 0531 621512

Telex: 512254

Telex:



CONTACT XENIA WHITE -
MARKET PLACE

FOR ADVERTISING RATES
PLACE

SK
Computer Systems Limited

DEC SYSTEMS FAST!

- ST. MICHAEL'S HOUSE NORTON WAY SOUTH LETCHWORTH, HERTS SG6 1PB
- PDP₁₁ BASED COMPUTER SYSTEMS
- FULL RANGE OF SOFTWARE
- PER CALL OR CONTRACT MAINTENANCE AVAILABLE
- WIDE RANGE OF DEC₁₀ COMPATIBLES
- TEL: 04626 79331
TELEX: 825647

DIGITAL EQUIPMENT Co

systems and compatibles in stock

- FAST DELIVERY
- ENGINEERING
- FULL SERVICE
- SOFTWARE SUPPORT

DECTM BASED SYSTEMS AND SUBSYSTEMS

- PDP-11/24, 34, 44, 70 ■ VAX-11/750+70
- DISCS FROM 10MB TO 256MB ■ TERMINALS
- PRINTERS FROM 30CPS TO 900LPM ■ MAGTAPE
- MEMORY ■ INTEGRATED OR ALONE ■ MAINTAINED

FULLY COMPATIBLE PROVEN PRODUCT
INSTALLED FAST AT COMPETITIVE PRICES

SYSTEK LTD, HR HOUSE, HIGH ROAD,
NORTH FINCHLEY, LONDON N12 0AZ
PHONE 01-349 2911 TLX 8952836

SYSTEK
SYSTEMS ARCHITECTS

® REGISTERED TRADEMARK OF DIGITAL EQUIPMENT COMPANY

PRODUCT LINE:

- New Magnetic Heads
- Refurbished Magnetic Heads
- Air Filters
- Disc Drives
- Fixed Platter
- Magnetic Tape Heads
- Disc Drive Repair

Ampex, CDC, Caelus, Calcomp, Diablo, DRI, Data General, Iomec, Pertec, IBM, Wangco, Memorex, ISS.

Computer Parts & Accessories Limited
44 Masops Hill, Bromley, Kent 01-464 7227 Telex: 896559

DEC and DATA GENERAL

Buy, Sell or Trade
Sample of items immediately available

- D.O. Expansion Chassis
- PIT
- 1144 Cabinet
- MMS-EJ
- H800 Cabinet
- RK05-J

Call: Alistair Dods, 01-467 1985 or 01-467 8489

Thomas Business Systems, Ltd.

FOR SALE

1/3275-0204 64KB Memory

(6130) IBM flexible disc 9"

Inch CRT VDU

1/4501-0308 VIS REC Printer

plus CCF

1/3275-K155 Memory

Support

Phone 031-332 2451

Mr. Buckle or Mr. King

HONEYWELL BULL USERS
SYNTHIA! CARTRIDGE
DRIVES FOR D120/D140
DRIVES IN STOCK!
Plus other computer supplies

Contact: Terminal Systems
Services:
Derby (0332) 883333

FOR SALE
IBM System 34
(128K 128Mb)
PLUS LINE PRINTER 5211
Available Immediately
PRICE £33,000 + VAT
TEL: 01-841 3570 ext. 41

WANTED
HONEYWELL LEVEL 6
Private buyer
Contact:
S. Dowling
High Wycombe
3853/53843

Based: tenders are invited for the supply, installation, and commissioning of a disc drive and a magnetic tape drive for a DEC PDP11/40 minicomputer.

Further particulars and a tender form may be obtained via application to the College Board of Governors, College of Technology, Bell Street, Didsbury, M19 1JG, to whom tenders should be returned by 8th February 1982.

1/3275-0204 64KB Memory

1/3275-K155 Memory

1/3275-0204 64KB Memory

1/3275-K155 Memory

Operations Analysts Look after

West London

up to £10,000 + car
Relocation Assistance

We are one of the fastest growing service organisations in Europe, utilising IBM 4341 mainframe equipment in this country and TI990 mini computers in our 7 European sites.

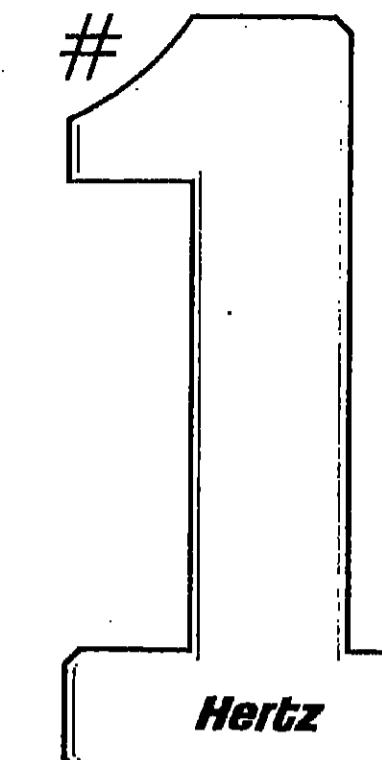
The scope and quality of our DP activities demands a high calibre of individual to join the Technical Support Team at its earliest stage.

There are two positions available, one more senior than the other, and these call for:-

- ★ A solid IBM operations background with current technical support experience in an OS or MVS environment.
- ★ Willingness to expand into TI990 support work involving European travel.
- ★ Experience or interest in CICS and Database control.
- ★ Initiative, flexibility and a desire for responsibility.

These are ground floor opportunities, offering technical and commercial variety, rapid career growth, challenge and real responsibility, where the more senior position carries the added benefits of free BUPA and a company car.

For further information and to arrange an initial interview please contact Phil Gascoigne on 01-935 0671 or Epsom 22481 (evenings and weekends).



and we'll
look after you



Specialist Computer Recruitment Ltd.

London 01-836 0871, James House, 46 James Street, London W1
Birmingham 021-238 3781 36-37 Great Charles Street, Queensway, Birmingham B3 3JY.
Manchester 061-833 0427 Blackfriars House, The Personage, Manchester M3 2JA.
Brussels 010 322-640 7151/71 Avenue Louise 327, Boite 4, 1050 Brussels.
Amsterdam 010 3120-780947 Willemsparkweg 92, 1071 H.M. Amsterdam.

SCRL

DO SYSTEMS PROGRAMMERS DREAM?

DREAM of accepting total responsibility for generating, implementing and supporting the latest IBM software for major sites within this international market leader.

IMAGINE overseeing the system/software development in the UK and Scandinavia utilising your interpersonal skills plus your expertise in:

- ★ VM/CMS
- ★ DOS/VSE/CICS
- ★ NETWORK PROTOCOLS
- ★ POWER

and possibly

- ★ VARIOUS DATABASE LANGUAGES
- ★ OPERATIONAL TOOLS

CONSIDER turning this dream into reality by contacting Gordon Thompson quoting ref. AP2098



NORTHANTS
to
£13.5K

Computer Search
01-404 0152

- ★ Full relocation
- ★ Overseas Travel
- ★ Product Discount
- ★ Free Life Insurance

Our Package

provides:
family air fares
relocation allowance
interest free loans
highest rates
weekly pay
protection against currency fluctuation
pay in both U.K. and U.S.A.
sickness payments
on-site welfare adviser

arranges:
medical insurance
personal loans
assistance with settling-in
accommodation
car transport
pleasant social scene

\$28,000 to \$45,000

Assembler Applications Programmers

preferably with some of: COBOL; TSO; CICS; Insurance applications; some analysis.

COBOL Programmers

preferably with some of: Assembler; TSO; CICS; IMS; Insurance applications; some analysis.

Systems Programmers, OS/MVS

preferably with some of: Assembler; COBOL; CICS; IMS/DL1; Data Dictionary; SMP; TSO.

Systems Analysts

preferably with some of: COBOL; CICS; Insurance applications experience.

Experienced applications programmers all have enjoyed the variety and have benefited from the experience. Our relocation package is fully comprehensive.

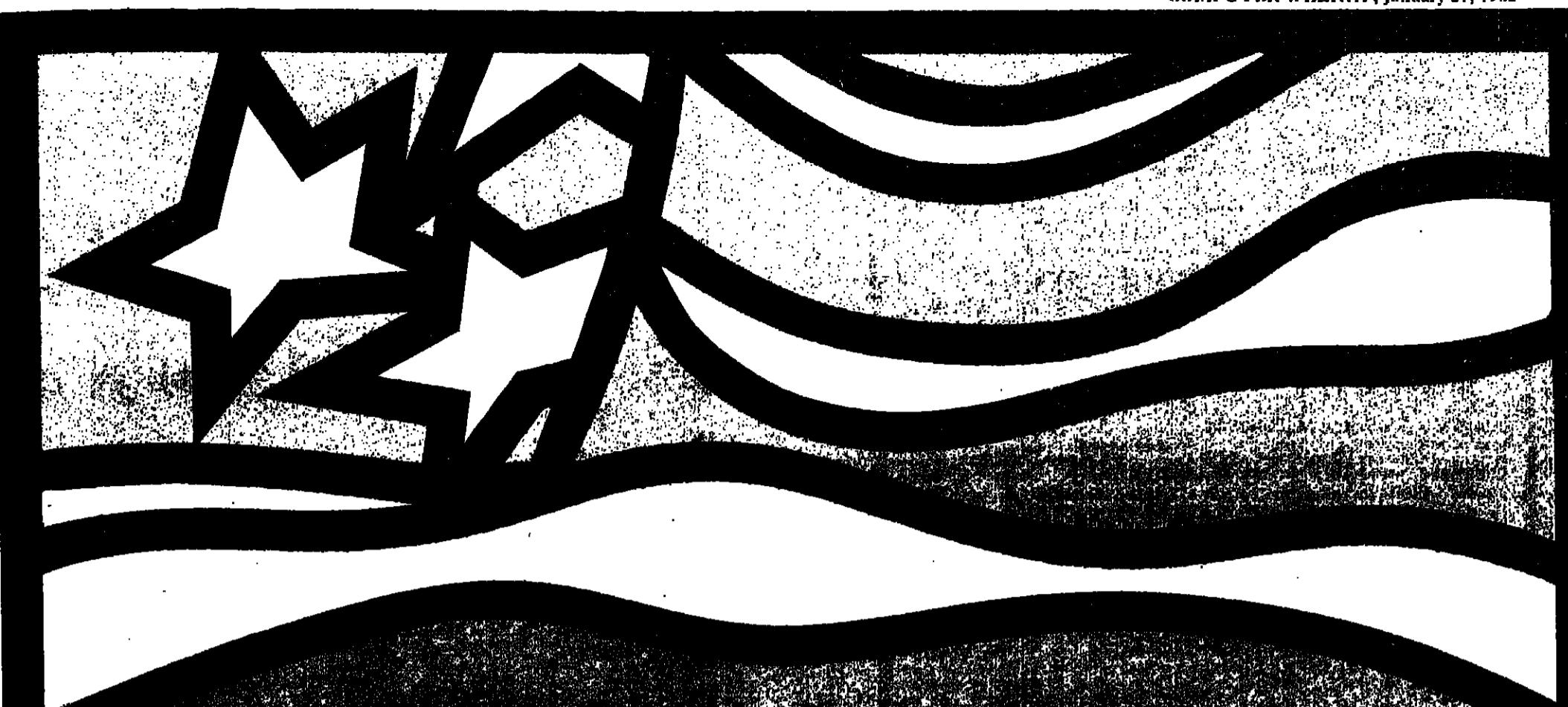
The combination of high pay rates and low cost of living, together with specific taxation concessions make our package irresistible.

Ring Computer People International on 01-836 9411
(24hr answering service).

FIND OUT

**Computer
People
International**

VLI House, 68-69 St Martin's Lane, London WC1N 4JS.



CST 10/15/81

CoOperators

Permanent Appointments

Shift Controller S.W. London £11.3K
6-7 years' experience and good knowledge of MVS JES2. Ref: MM445/CW.

Operations Controller W. London c.£7K
DOS/VSE POWER/VSE background, preferably with knowledge of VM + CMS. Ref: MM448/CW.

Operator W. London £7K
IBM 4300 installation require candidate with 2 years' minimum DOS/VSE experience. Ref: MM440/CW.

VAX Operators Middlesex c.£7K
1 year experience of VMS for new installation. 2 shifts only. Ref: MM443/CW.

Contact **Madeleine** on 01-836 8411 regarding the above positions.

PDP Technical Manager C. London £10-12K
A new PDP user is seeking a technical manager to play a key role in establishing their London operation. No programming or analysis skills necessary. Age - late 20's. Ref: KS463/CW.

IBM DOS Junior Operator Hants coast £5.8K
6-9 months' DOS/VSE knowledge could find you working at this multi-machine site based on the Hampshire coast. Ref: KS464/CW.

ICL GEO III Operator Oxfordshire £5.5+
Large ICL user can offer job security and interest to the operator with approximately 9 months' GEO III experience. Ref: KS451/CW.

Contact **Kay** on 01-836 8411 regarding the above positions.

ICL DME Senior Operator W. Essex £8.8-7K
At last - no more commuting. Local company offering all the advantages you would expect from a job in London. 2 years' ICL DME experience. Ref: DF482/CW.

System 34 Operator City £8.3 + Perks
New IBM 34 site seeks operator with 2 years' experience. Age 20-25. Good career prospects. Ref: DF421/CW.

Honeywell Ops. Supervisor E. London £9K
To take full control of Honeywell L64 site. Ref: DF435/CW.

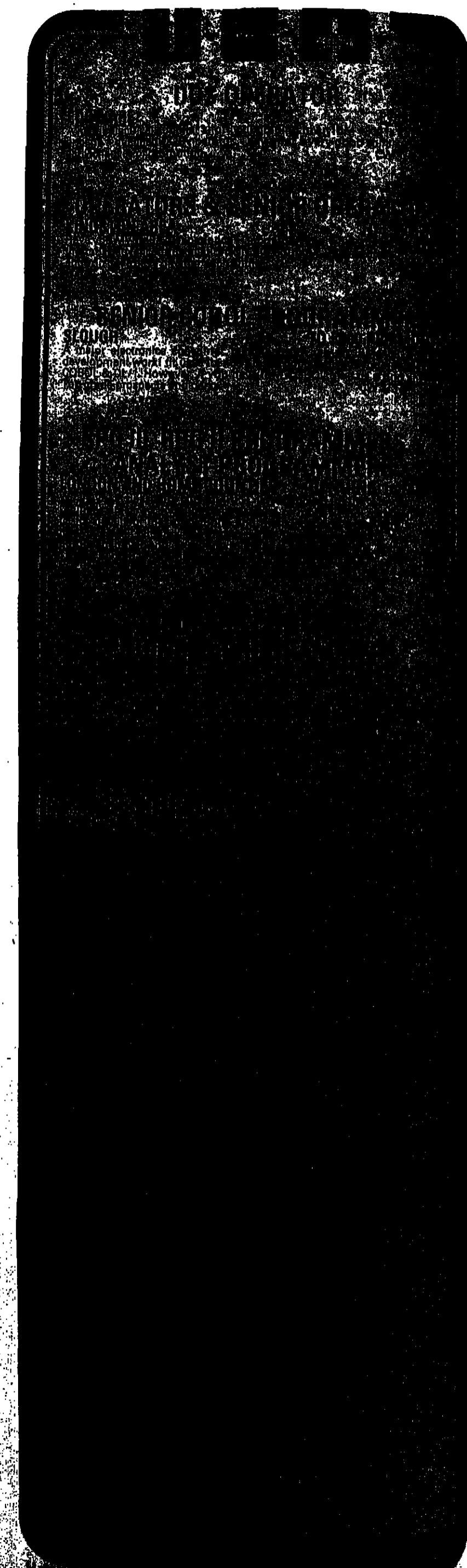
Data Control Clerk Essex £ Excellent
Varied work including the control of user input, setting-up computer runs, checking output and working within strict time limits. Ref: DF438/CW.

Contact **Diane** on 01-836 8411 regarding the above positions.

Contract Requirements

Step Press - America!!
IBM 4341 MVS - 6 months - start March 1982
Honeywell 66 GCOS - Dutch speaking - Holland
IBM DOS/VSE - London
Honeywell level 64 GCOS/OS 2000 - Home Counties - as soon as possible
Honeywell level 62 GCOS - London
Contact: **Liz** on 01-836 8411 regarding the above contract positions.

CoOperators
6-9 S.M. Lines Ltd.
London WC1N 4US
Tel: 01-836 8411
01-836 8411



COBOL PROGRAMMER Any Mainframe

C. LONDON c. £9,000

A leading member of the London Commodities Market urgently requires an experienced Cobol Programmer. Candidates should have at least two to three years' experience with a Financial/Commercial background, working ideally in a large installation. They may have worked on any manufacturers machinery as specific training will be given where necessary. The successful candidate is likely to be in the 24-30 age range and have the ability to converse at all levels. They should have the ambition to progress within the company as the position offers high chances of a move into analysis. Candidates with knowledge of systems design will be at an advantage. The starting salary will be c. £9,000 plus usual large company benefits including a non-contributory pension scheme. Assistance will be given with relocation expenses where necessary. In the first instance, reply to DataScene International quoting D.5720.

Ref: L3/A

dataScene
01-439 7871
24 hour answer phone
London & Brussels DataScene Services International

Sceptre House 169/173 Regent Street London W1R 7FB. Telex: 25851

DYFED COUNTY COUNCIL
Carmarthen Technical and Agricultural College
Department of Applied Science

LECTURER II

Applications are invited for the post of Lecturer II in Systems Analysis/Computing to teach these subjects to a range of classes, both full-time and part-time. The person appointed will be expected to assist with staff development within the College, and to advise on the development of courses in Computing, Science, Engineering, Business Studies, Agriculture and Catering.

Qualifications - A wide experience of computing in industry and commerce is expected, together with an appropriate academic or professional qualification.

Application forms and further details are obtainable from the Principal. Closing date - 8th February, 1982.
W. J. PHILLIPS, Director of Education, Education Department, Pwllheli, Carmarthen.

**FOR CLASSIFIED ADVERTISING USE
DIRECT LINE
01-661 0121**

Ferranti Computer Systems Ltd.

Systems Designers and Programmers

SOUTH MANCHESTER £7,000 to £11,000

The Wythenshawe Division of Ferranti Computer Systems Limited require people with experience of real time computer systems to work on important communication, control and display projects to be installed in the U.K. and overseas.

Current vacancies include work in the steel, food, oil, gas, electricity, transport, printing, office and communication sectors of industry.

Applications include: industrial process control and management; data collection, manipulation and display; data communication, including network architectures, message switching and international standardisation. Much of the work involves interconnected mini computers and microprocessors.

The posts require a high level of technical competence, responsibility and initiative, plus the determination to meet commercial as well as technical objectives.

For further information, please telephone Mrs. A. Hill on 061-499 3355

Ext 3712 or write for an application form to:

The Chief Engineer (Projects),
Ferranti Computer Systems Limited,
Simonsway, Wythenshawe, Manchester M22 5LA.

Open to male and female applicants.

B2/WD/GW

Ref: L163

FERRANTI
Selling technology

logistix

Logistix Recruitment Limited
10 Grenville Place, London SW1 4RW

Telephone 01-373 3063

ATE - Systems Design

Southern Home Counties: Salary to £11K

A highly regarded company in the design and manufacture of Automatic Test Equipment for Linear LSI, Digital and Laser trimming device systems has a number of vacancies for Systems Architects. Suitable candidates must hold at least one numerate degree and have two or more years' post-graduate work experience. Of particular interest will be those who can conceive and design a system or subsystem for end user applications. Additionally, you will have direct involvement in the resolution of both in-house research and customer test problems. You will frequently be required to actively participate in seminar presentations and systems demonstrations. Certain positions will entail a degree of regional or international travel, consequently you should enjoy the combination of high technology involvement and a cosmopolitan working environment. Ref: L3/A

Pascal Programmers

Home Counties: Salary to £11K

A leading supplier of Business and Communications Systems has a requirement for a number of PASCAL Programmers. All respondents, preferably aged 22-30 years, should offer a minimum of one year's post-graduate industrial experience in an environment where PASCAL has been used as the major programming language. You will probably be employed as either a Software Engineer or Junior Applications Pro-

grammer within a systems or software supplier. Our client can offer a number of diverse opportunities within its various operating divisions covering such technical areas as the design and implementation of financial management packages, data communications networking or the development of the home and hobbyist computing markets. Ref: L3/B

Project Leaders

Central London: Salaries to £15K

A world leader in the field of Information Technology and Communications is currently seeking additional Project Leaders. Suitable applicants will be aged 27-35 years and offer a minimum of five years' combined programming and systems development experience gained in either a manufacturer or systems house environment. You should have a detailed knowledge of message packet switching, office automation or Videodata systems. Of particular interest will be candidates who have experience in leading or managing a project team involved in the development of a system from feasibility through to implementation. Candidates who can offer foreign language ability will be offered the opportunity to travel overseas. Ref: L3/C

Jnr. Scientific Programmers

Sweden: Salaries to £14K

Our client, an internationally renowned Systems House, is currently seeking additional Real-Time Programmers for its Swedish division. These positions will appeal to young enter-minded graduates who are currently employed in a real-time mini- or microprocessor environment. It is essential that you have a minimum of two years' programming experience and languages should include Pascal and Assembler. Particular application areas of interest are telephony, telecommunications, industrial engineering or process control. As a member of a small project team you will be involved in the design, coding and testing of real-time applications software to meet user specification. Ref: L3/D

Local Area Networks

London & Home Counties: Salary to £16K

Communications Systems Designers and Real-Time Programmers are required to assist in the development of an advanced micro-based local area network. Systems Designers will have been responsible for the formal definition of the structures and interactions required to provide shared communications on at least one major, non-homogeneous system. Whilst not essential, familiarity with the T.S.O. reference model will be favoured. Applicants for the programming positions will be required to have at least two years' communications experience, preferably gained on a packet-switching system. Candidates with a knowledge of X25 protocol standards will be especially welcome, as will those with practical experience of U.C.S.D. Pascal. Ref: L3/E

Micro Development

Beds/Cambs: Salaries to £10K

A number of Micro Engineers are sought by a highly regarded microcomputer manufacturer, to join its Research and Development facility. At least one degree in Computer Science, Electrical Engineering or a related discipline is essential and should, preferably, be supplemented by at least two years' work experience. It is anticipated that you will be currently employed by a computer manufac-

VAX Progs/Designers

London & E.E.C.: Salaries to £15K

A leading International Systems Company specialising in the development and sale of communications software is seeking Programmers and Designers for its Central London and overseas facilities. Suitable candidates should hold a numerate degree and have two years' subsequent programming or systems design involvement. Fluency in FORTRAN is essential and it is preferable to have had exposure to either a PDP 11/RSX-11M or VAX/VMS configuration. Candidates who are fluent in a foreign language especially French or German will be of particular interest to our client. A degree of mobility is necessary since most positions involve both European and transatlantic travel. Ref: L3/F

Basic Programmers

Berkshire: Pkge to £10K

A long-established Systems and Software House with its UK headquarters based in rural Berkshire is currently seeking additional Programmers. Suitable candidates will be graduates with a minimum of one year's industrial experience, preferably in a commercial environment. Fluency in Basic is essential. Whilst exposure to particular hardware is not important, there is a stated preference for candidates to have worked in a minicomputer environment. You will join a project team engaged in the development of financial packages for end users and computer manufacturers and therefore a knowledge of accountancy would be a distinct advantage. The remuneration package is excellent and includes a car allowance, a bonus and an above-average basic salary. Ref: L3/H

Ref: L3/I

Ref: L3/J

Ref: L3/K

Ref: L3/L

Ref: L3/M

Ref: L3/N

Ref: L3/O

Ref: L3/P

Ref: L3/Q

Ref: L3/R

Ref: L3/S

Ref: L3/T

Ref: L3/U

Ref: L3/V

Ref: L3/W

Ref: L3/X

Ref: L3/Y

Ref: L3/Z

IT'S PLAIN SAILING WITH TRIDENT.

FOR FREELANCE ASSIGNMENTS

SOUTHERN 0276 64252
BURROUGHS 66/6800 DMS 11 COBOL

Long term assignments. Start March
9 month contract A.S.A.P.

Any COBOL with Michael Jackson structured techniques

Project Leader with QPAC Analysts with Life Assurance or Financial background

Analysts various Systems UNIVAC 1100 COBOL some with DMS

UNIVAC 1100 Fortran IBM ACFC/VTAM SYSTEMS PROGRAMMER

IBM OS COBOL

IBM COBOL, CICS & DL1

IBM PL1 Various requirements

IBM B100, DPPX, COBOL

IMS SYSTEM 34, RPG11 & DMAS

IBM RPG11

IBM COBOL, CICS & QPAC

IBM CICS (DMS)

IBM DMS DB/DC, CONSULTANT

IBM IMS DB/DC, ADF TEAM LEADERS/SYSTEMS DESIGNERS

IBM CMS COBOL

IBM CICS VTAM, COBOL/ASSEMBLER, Programming

Consultants

IBM MARK IV

HONEYWELL L64, 66, GCOS, COBOL, IDS, TDS

HONEYWELL L66 COBOL & FORTRAN

ICL 2900 VMEB COBOL some with IDMS

BURROUGHS SERIES 1 PROGRAMMERS

PDP RSTS/E BASIC + or BASIC + 2

PDP RSX11M BASIC + 2

PDP COBOL

PDP VAX/BASIC

HP 3000 COBOL

WANG COBOL or BASIC

PASCAL PROGRAMMERS

TANDEM any levels (URGENT)

CORAL 68 some with MACRO 11

VENTEK DATAPORT, DATABUS

OVERSEAS HOLLAND

021-742 4431

HP3000 COBOL PROGRAMMERS

ICL 2900/MC29 TME SYSTEM PROGRAMMERS

SYSTEM ENGINEER - HP1000 or Motorola 6809

MICRO Technician with DC Interface exp.

DEC Software Programmers

DEC/VAX Mumps Programmers

OVERSEAS — SAUDI ARABIA 0276 64252.

Programmer/Analysts with any of the following: PL1,

MARK IV, FORTRAN IV, with OS/MVS, TSO/SPF, and

or IMS, DB/DC, ADF, COBOL, JCL, UTILITIES, Business

Analysts to formulate an EDP Training Program,

Business Analyst, General Commercial Systems

JCL Writers/Mvs

OPERATORS 0276 64252

ICL 1900 George 23, George 3

IBM 3200 DCS or QS/VM

IBM OS/MVS

OS/MVS, ICL WRITERS

PERMANENT

B312, Programming Services Manager/Banks

Major retail group, wish to appoint an IBM VM/CMS

Senior COBOL Programmer preferably with experience

of CICS or M Structured Programming. The prime

function is to provide expertise and advice on all applica-

tion programming matters to Systems Development

Teams, recommending programming standards, etc.

BS114, HP3000 Programmers/Analysts, with Basic and/or

COBOL, are urgently required for Banks, Surrey and

City-based organisations.

For further information on the above or advice on

current career opportunities in the U.K. and Europe

context: Bill Evans or Peter Baker, on Contractors

(0276) 64252 or send detailed C.V. to:

**OVERSEAS SOUTH,
AFRICA** 021-742 4431

All levels of application and Systems experience re-
quired for long term contracts or permanent positions,

IBM and Plug Compatible hardware.

IBM PL1 Various requirements

IBM B100, DPPX, COBOL

IMS SYSTEM 34, RPG11 & DMAS

IBM RPG11

IBM COBOL, CICS & QPAC

IBM CICS (DMS)

IBM DMS DB/DC, CONSULTANT

IBM IMS DB/DC, ADF TEAM LEADERS/SYSTEMS DESIGNERS

IBM CMS COBOL

IBM CICS VTAM, COBOL/ASSEMBLER, Programming

Consultants

IBM MARK IV

HONEYWELL L64, 66, GCOS, COBOL, IDS, TDS

HONEYWELL L66 COBOL & FORTRAN

ICL 2900 VMEB COBOL some with IDMS

BURROUGHS SERIES 1 PROGRAMMERS

PDP RSTS/E BASIC + or BASIC + 2

PDP RSX11M BASIC + 2

PDP COBOL

PDP VAX/BASIC

HP 3000 COBOL

WANG COBOL or BASIC

PASCAL PROGRAMMERS

TANDEM any levels (URGENT)

CORAL 68 some with MACRO 11

VENTEK DATAPORT, DATABUS

MIDLANDS & NORTH

021-742 4431

Scientific Fortran Programmers for any machine

IBM DOS/VSE, CICS, DL1 — SYSTEM PROGRAMMERS

IBM 1CL/IMDS DB ADMINISTRATOR

IBM DL1, IMS PROGRAMMERS

IMDS ANALYST/PROGRAMMERS

PDP RSX11M/MACRO 11 PROGRAMMERS

POD RSTS/E

POD RSX11M/MACRO 11 PROGRAMMERS

POD RSTS/E

PO

Real-Time Programmers

Up to £10,000 p.a. Dorset coast

Increase your skills on Europe's most advanced data comms., projects

Our business based at Poole plays a leading role in advanced data comms., and includes exciting projects concerned with packet switching, telex switching, data concentrators, modems, internetwork adaptors and new services such as teletex.

We can offer excellent career opportunities to experienced Programmers who will work with well qualified professional engineers in small design teams on complex multi processors operating under Real-Time Software. Specific responsibilities will include the design of modules, writing and testing programs for new Pads, Message Protocols, Execs., and Test Beds.

Applicants should have had at least 18 months Real-Time Software experience

(substantially greater for the more senior posts) and preferably a working knowledge of ASSEMBLER.

In addition to a competitive salary we offer an attractive package of benefits including free BUPA and comprehensive relocation package. We are located close to the pleasant Dorset coast where housing is reasonably priced and there are good educational, social and leisure facilities available.

For an informal discussion please call on any weekday during the next week up to 6pm reversing the charges on 020 13 5161 ext 2028 or write with full personal and career details to: J.G. Griffiths, Plessey Controls Limited, Sopers Lane, Poole, Dorset, BH17 7ER.

PLESSEY

SYSTEMS & PROGRAMMING CONSULTANTS

Computer Systems International is a Software house with offices in London, New York and Dallas. We are currently seeking all levels of staff to compliment our existing teams.

PROGRAMMER, ANALYST PROGRAMMERS

Minimum 2 years' experience, ideally IBM Mainframe, with strong COBOL ASSEMBLER a distinct advantage.
£7,000+

PROJECT MANAGERS

Approximately 10 years' experience to control teams of Programmers and Analysts. Good technical background required with excellent communications skills. To £15,000

In addition to our current business in England and the States, we are planning several assignments in Europe and the Far East in the near future.

Consequently you should be self motivated, flexible in outlook and prepared to travel on a temporary basis. Benefits include regular salary reviews, excellent pension schemes, life insurance and a company car for senior staff.

To arrange your confidential interview, phone Sue Ashby or Anne Betts on 01-836 6776 (daytime), 0844 5353 (evening and weekends). Sue Ashby.

Computer Personnel International
3592 Southampton Street, London WC2E 8PR
(01) 399 9183

Sales Executives

NORTH-WEST ENGLAND
Over £20,000 and Car

* THE COMPANY

Leading British company in high growth area - rapidly expanding user base.

* THE PRODUCT:

Powerful range of minicomputers - comprehensive applications packages - "stand-alone" or distributed operation - competitively priced.

* THE PEOPLE:

Experienced Sales Executives with proven track record and entrepreneurial flair - ability to negotiate with all levels of companies/personnel - management potential.

* THE REWARDS:

Basic £9k - Realistic "On-Target" Earnings of over £20k + Company Car + Management Prospects.

* CONTACT:

MIKE SHINDY
061-236 7026 (Office)
061-773 6128 (Home)

Insight Marketing and Personnel Consultants
Austin House, Charlotte Street,
Manchester M1 4FL

TOP JOBS FOR TOP SALES PEOPLE
Insight Marketing & Personnel Consultants

SWITZERLAND

English speaking project Telex Software Development

An International Telecommunications Company is seeking Software Programmers to develop new Software for PUBLIC DATA SWITCHING SYSTEMS. Candidates should be in their mid to late 20s, have a degree, plus a minimum of 2/3 years' Assembler experience in a telecommunications environment. Alternatively candidates with operating systems experience would be equally valid. Successful candidates may look forward to enhancing their career progression, gaining valuable experience in an international environment.

Technical Author Switzerland

A Technical Author is required for a communications company in German-speaking Switzerland. The successful candidate must be in their late 20s, have a fair knowledge of German with Hardware or Software experience within an engineering background.

Technical Writer Italy

Our client seeks a Technical Writer to work in Northern Italy. The successful candidate must have communications experience including the following: IBM/SRA, SPOOLING & PDP11 operating systems.

SWITZERLAND

German-speaking Project Software Development

A major communications company require additional German-speaking Programmers following expertise:

- German language
- Assembler
- Process Control Type Applications
- Real-Time Communications
- 2/3 years' experience
- Degree

Qualifying applicants may look forward to considerable career advancement, gaining vital experience in an overseas environment.

DATAMATICS
RECRUITMENT SERVICES
01-399 9183

SYSTEMS PROGRAMMER/ OPERATIONS MANAGER

with at least 3 years RSTS/E experience to wet nurse our new PDP11/44 installation. Experience in typesetting, text processing or word processing fields would be a distinct advantage.

Salary is negotiable and commensurate to the position offered.

Write giving full details to:
P. Watson (Managing Director)

Topset Typographics Limited 90-94 Clerkenwell Road, London EC1M 5TE

OPERATIONS MANAGER

N. LONDON from £10K + CAR

Major company situated in North London area require an experienced IBM Operations Manager for their expanding DOS/VSE installations.

The successful applicant must have a mature outlook, together with a proven ability to liaise with development teams and all levels of management.

This position also involves some travel within the UK.

For further details telephone:

01-834 6923 (Daytime)

or

01-834 0081 (24 hrs.)

RUCK COMPUTER SERVICES LTD.

RECRUITMENT DIVISION

22 ROCHESTER ROW

VICTORIA, LONDON SW1P 1JU

01-834 6921

EDUCATION DEPARTMENT

MONKWEARMOUGH COLLEGE OF FURTHER EDUCATION

DEPARTMENT OF SCIENCE & TECHNOLOGY

Applications are invited for the post of

LECTURER II

With responsibility for BEC and BSC/TEC Computer Courses. Candidates should possess a degree or other equivalent qualification in Computing, and have practical experience of use of computers in industrial/business situations. A reading qualification is desirable.

Salary Scale: £3,452 - £10,431 p.a.

Application forms and further information are available from the Principal, Monkwearmouth College of Further Education, Swan Street, Sunderland, SR5 1EB.

Closing date for applications: 3rd February, 1982.

borough of sunderland

Operations Manager

London Based

£10-13k.

C.I.S. is an English registered company based in London and Paris. Operating within a specialised application field, and including among its customers most major finance companies and a large number of motor manufacturers and importers, the company offers a complete range of turnkey, bureau and software development services.

C.I.S. uses N.C.R. MAINFRAMES, running various on-line applications including Voice Response Systems. To run the installation we are seeking to employ an OPERATIONS MANAGER who has experience of managing people and controlling a busy shift operation under pressure.

The successful applicant will have a sound knowledge of N.C.R. 8500 equipment, the VRX operating system and some experience of communications. The position provides an opportunity for the Operations Manager to steer the company through an equipment upgrade, and to establish standards and procedures to the highest possible level.

The position is a senior one within the organisation and applicants must have the ability to achieve efficiency improvements, meet production schedules, and maintain a good working relationship with suppliers, while maintaining a complete control over their standards of service. In return the company offers a high benefits package in a highly successful and rapidly expanding organisation. For further details contact Kevin McCourt quoting reference 5665.



**Lloyd Chapman
Associates**

123, New Bond Street, London W1Y 0HR 01-499 7761

BOX NUMBERS

Box number replies should be addressed to:

Box Number
c/o Computer Weekly
Quadrant House
The Quadrant
Button, Surrey SM2 5AS

SOUTH AFRICA PROGRAMMERS

Minimum 2 years experience in Cobol and/or RPGII for IBM 4341 preferably in an on-line environment.
Our client offers attractive salary, 13th cheque, pension and life assurance and car hire.

A representative from VOLKSWAGEN South Africa will be conducting interviews in London (ADY), 811 High Road, Leyton E12 8BW. 01-461 0222

Senior Programmers/ Analysts

Can you help develop Large Scale Business Systems? One year contract package worth in excess of \$50,000

Our client is a Houston-based consulting firm serving the growth industries of oil and energy in the U.S. sun belt, for whose companies the continuing development of increasingly sophisticated systems is necessary if they are to meet their dynamic expansion plans in international markets.

As a result they have a heavy demand for DTP professionals, advancing and leading programming teams in producing the software for new business systems.

Applicants should have at least five years' COBOL programming and design experience including data base exposure in supervisory or consulting positions for batch and on-line applications.

You should have used IBM's IMS techniques and on-line utilities such as ROSCOE and LIBRARIAN and a working knowledge of JCL would be welcome.

Our client is looking for programme specification experience and proven expertise in the use of best current practice structured design techniques.

Initially contracts will be for one year on single status, renewable by mutual consent.

However longer-term family status contracts or permanent assignments are anticipated.

High salaries and professional career opportunities are supplemented by a most generous benefits package which includes free accommodation, free transportation, free medical insurance, relocation, and Visa costs paid, 25% Completion Bonus, and full assistance in settling in.

For further details please contact Elizabeth Piper or send your c.v. NOW to her at: Ikelis; Rolls & Radcliffe, Union House, Bridge Road, Tunbridge Wells, Kent TN4 8HF. Tel: (0892) 35717.

BUPA

Houston Texas

Utilities such as ROSCOE and LIBRARIAN and a working knowledge of JCL would be welcome.

Our client is looking for programme specification experience and proven expertise in the use of best current practice structured design techniques.

Initially contracts will be for one year on single status, renewable by mutual consent.

However longer-term family status contracts or permanent assignments are anticipated.

High salaries and professional career opportunities are supplemented by a most generous benefits package which includes free accommodation, free transportation, free medical insurance, relocation, and Visa costs paid, 25% Completion Bonus, and full assistance in settling in.

For further details please contact Elizabeth Piper or send your c.v. NOW to her at: Ikelis; Rolls & Radcliffe, Union House, Bridge Road, Tunbridge Wells, Kent TN4 8HF. Tel: (0892) 35717.

CONTRACTORS

For £35 a year, name your own price!

IREX CLEARING HOUSE

The IREX Clearing House is a simple, computer-based system for making direct contact and contracts in D.P., Finance, Technical and other disciplines - without incurring Agency costs.

Members of the 'House', both those supplying contract services and those requiring such services, enjoy a fast, discreet matching facility.

The Clearing House serves only its Members, is not an employment or contract agency, and this is reflected in the moderate fee scales.

Additional membership applications can now be considered from individuals, partnerships and companies of all sizes who would appreciate the benefits of membership.

Please telephone 01-261 1543, or write to the Membership Secretary.

Name _____
 Position _____
 Company _____
 Address _____
 Telephone _____



SNOW HOUSE, 103 SOUTHWARK STREET
 LONDON SE1 0JF, ENGLAND.
 TELEPHONE: 01-261 1543
 TELEX: 25187

(B120)

EMIAY COMPUTER SERVICES



TEAM LEADER £14,000

Our clients, a leading financial institution, would like to recruit a team leader with proven supervisory and forward planning experience. CICS and TSO experience is not essential but number one priority, as you will be managing their systems team which consists of five people. They give their staff excellent company benefits, good career paths and a professional and stable working environment.

TRAINING IN THAT FOUR-LETTER WORD - CICS ANALYST PROGRAMMER £8,500+

Are you fed up with applying for mainly stock jobs and find you are not progressing? Because you haven't got CICS experience? Then there's an ideal opportunity for you to move on! That's what our client needs someone with two years' IBM COBOL to work in a small team. They are prepared to invest in you in CICS and pay you an excellent salary plus bonuses. Interested? Of course you are. Call us for more information.

CALL LINDA ABL OR ELLEN WALDREN ON
 01-404 4339 or 01-242 0076

COMPUTER SERVICES

(B170)

SENIOR PROGRAMMER/ANALYST (DATA PROCESSING MANAGER DESIGNATE) CAMBRIDGE

Bidwells is a leading firm of chartered surveyors, managing property and farms through the country. Due to expansion and with a software house involvement we have recently installed a Data General Nova 4 System to upgrade and expand systems in our accounts and estate management operations. We now wish to appoint a Senior Programmer/Analyst to head up and expand our computer function.

The successful candidate will be a Programmer/Analyst of at least 5 years' experience and will have developed systems using DG Business Basic. He or she is probably currently employed in a progressive DP environment or a software house, can show a record of successful systems, be self-motivated and able to communicate with assurance with all levels of management.

We consider this to be an appointment which will grow as our data processing needs develop. The position involves a wide range of tasks to ensure the efficient operation of existing systems and to recommend and effect the installation of new hardware and software in other areas of our business. We offer excellent conditions for our staff. Benefits include annual merit bonus. Relocation expenses will be paid. Local accommodation will be provided.

Please apply with full details of age, experience and present salary to:

J. T. Livingston Booth F.C.A.
 Chief Accountant
 Bidwells, Trumpington Road, Cambridge CB2 2LD

Your opportunity in the sun. Join one of South Africa's most sophisticated computer installations.

CONTRACT OR PERMANENT

Our Client, Infogold, is the Information Systems Department of the Gold and Uranium Division of the Anglo American Corporation. They are looking for:

SOFTWARE PROGRAMMERS DATA BASE ANALYSTS ANALYST PROGRAMMERS PROGRAMMERS

Situated in the country the Installation presently has an IBM 3033 and an IBM 3022 with South Africa's first IBM 3081 being installed early this year. In addition, they have a wide range of mini computers at remote sites. They use the latest software tools, including IMS data base and data communications.

They are looking for genuine DP professionals at all levels who already have a minimum of two years' experience in the industry. Education and training is given top priority and the true data processing professional need not necessarily have a background with IBM equipment.

South Africa has much to offer—a booming economy, sunshine, low taxation and high living standards. The employment package offered by Anglo American is generous, even by South African standards, and includes:

- Top salaries plus a car for senior positions.
- Annual bonuses for permanent staff or end of contract bonuses for contract staff.

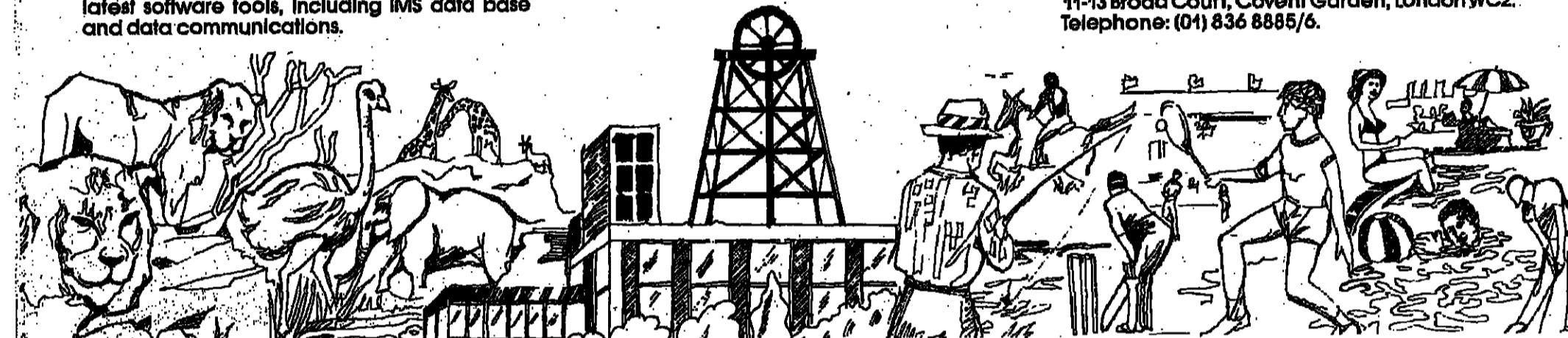
- Housing at 5% of the basic salary.
- Generous water and electricity subsidy.
- Four or five weeks' leave per annum.
- Generous relocation assistance.
- Superb sports and social facilities.

This is an ideal opportunity to combine career progression, experience in a new country and a real possibility of saving.

Initial interviews will commence in London on 22nd February.

For further information please contact Anne Breuer or Chad Stolper on (01) 836 8885/6 or, if you prefer, write to:

PRESOT COMPUTERS LIMITED
 11-13 Broad Court, Covent Garden, London WC2.
 Telephone: (01) 836 8885/6.



Data Communications Network Engineer

The development of the global telecommunications network has led to the requirement for an additional Data Communications Engineer to join the International Operations Department of American Express Corporate Telecommunications Services, based in Brighton.

Key responsibilities will be in an operations support role involving diagnosis and rectification of network outages, liaison with vendors regarding the maintenance and servicing of data communications equipment and some network installation/reconfiguration work.

We are particularly interested in candidates, male or female, with experience of P.O. Racal Milgo and Codex Modems, multiplexers and allied devices. Experience with IBM systems hardware and line protocols would be an advantage.

An attractive salary is offered together with a mortgagable assistance scheme, non-contributory pension and group life assurance plans. Relocation expenses will be paid, where appropriate.

Please write giving career and salary details, or telephone for an application form to: Mrs. Diana Sharpe,
 Senior Personnel Officer, Corporate Personnel,
 American Express Ltd., Preston House, Preston Road,
 Brighton, Sussex, BN1 6BX. Telephone: (0335) 541 3029.



AMERICAN
EXPRESS

Support Executive Software

£12-15,000 incl. incentive

A responsible profit-orientated job for a dynamic young blade with a nose for managing problems and people. He or she needs to have full technical understanding of Software/Support. To control a system that ensures service for the customer and revenue for the company. A small highly integrated systems manufacturer, N. London. Incentive scheme and benefits. Please send full details or phone for a han - Peter Summers.

Management Resources

Management Consultants
 23/24 Great James Street, London WC1N 3ES Tel: 01-404 4997.
 America Asia Australasia Europe

SENIOR ANALYST PROGRAMMER £10,000

Do you have the ability to maintain and enhance systems without redesign? In this company you would be involved in the overall computer department that is in the initial stage of expansion. They currently run an IBM 370 and an IBM Sys. 3. If you have IBM COBOL, would like the opportunity of learning RPG11 and BASIC, then this could be an ideal career move for you. Call us for more details.

SENIOR PROGRAMMER £9,500+

Are you fed up with applying for mainly stock jobs and find you are not progressing? Because you haven't got CICS experience? Then there's an ideal opportunity for you to move on! That's what our client needs someone with two years' IBM COBOL to work in a small team. They are prepared to invest in you in CICS and pay you an excellent salary plus bonuses. Interested? Of course you are. Call us for more information.

CALL LINDA ABL OR ELLEN WALDREN ON
 01-404 4339 or 01-242 0076

COMPUTER SERVICES

(B170)

ANALYST/PROGRAMMER

We require an Analyst/Programmer to further extend and integrate our production control, financial and administrative systems. Applicants should have COBOL experience. Previous experience of production Control Systems and knowledge of Data General CS Software would be advantageous. We are a progressive company and can offer a stimulating background to the right candidate. Salary will be subject to experience and qualifications, but is unlikely to be less than £7,500.

Please apply in writing enclosing CV to:
 Mr. J. Duncan
 Director
 Schmidt Manufacturing and Equipment (UK) Ltd.
 Station Road
 Sutton, E17
 Cambs CB6 2RL

SCHMIDT

PROGRAMMER NCR COBOL

International financial organisation requires a programmer with NCR Cobol and IMS experience. Any exposure to IBM RPG11 would be useful. This is an excellent opportunity to join a rapidly expanding D.P. department and become involved in a variety of systems and hardware with the possibility of some overseas travel. Usual banking perks are offered.

£8,000

JNR PROGRAMMER RPG11

Subsidiary of a multi-national corporation require 2 Junior Programmers with at least 6 months commercial RPG11. Excellent career path with rapid progression through to analysis. This is a good opportunity for a skilled programmer to move into a small and professional team.

£7,000

ANALYST & PROGRAMMERS to £11,500 DG COBOL

A well-established bureau currently embarking on new projects requires various levels of staff from programmers to senior analysts/programmers. Knowledge of DATA GENERAL NOVA under ICOS is essential for the more senior positions whilst a good commercial COBOL background would be suitable for the programmer post. Based in Central London, this client offers good working conditions and excellent career prospects.

£11,500

SYSTEMS PROGRAMMER BURROUGHS ALGOL

A large company whose interests are well known are currently looking for an experienced systems programmer to join their specialist team on a wide variety of applications. A minimum of 3 years' experience utilising MCP and datacomms with the emphasis on datocomms is required with extensive use of algol. Any knowledge of Cobol would be useful. A good relocation package is offered to this site in Surrey. This requirement is urgent.

£11,500

SENIOR PROGRAMMER BASIC +/- 2

At least 2 years' Basic+ with some Basic+2 is required by a large City user. As well as programming ability applicants must be able to manage junior staff. All programming staff are encouraged to gain early involvement with analysis since there are no analyst/programmers.

£9,500

PROGRAMMERS HP COBOL

Senior and Junior programmers are required by sites in C. London and the Home Counties. Applicants should have from 1 to 4 years' experience preferably gained in an H.P. environment. These positions are with progressive companies offering excellent career prospects and a variety of perks including mortgage subsidy, travel allowance etc.

to £11,500

SENIOR PROGRAMMER HONEYWELL

Manufacturing company based in Middx, using a L84 DPS mainframe, is currently seeking to recruit a programmer with 3 years' + Cobol experience. Knowledge of TDS is desirable as the company is expanding and adopting all the latest software releases. Perks are excellent and include 6 weeks' holiday and 50% discount on company products.

£9,500

PROGRAMMERS HP COBOL

Expanding City based installation seeks a programmer with around 2 years' Cobol experience gained on the ICL 2900 range. The preferred applicant will have both on-line and database experience with a good commercial background. The company is shortly installing new hardware and can offer excellent career prospects and perks including a substantial bonus scheme.

£9,000

PROGRAMMER ICL COBOL

Expanding City based installation seeks a programmer with around 2 years' Cobol experience gained on the ICL 2900 range. The preferred applicant will have both on-line and database experience with a good commercial background. The company is shortly installing new hardware and can offer excellent career prospects and perks including a substantial bonus scheme.

to £11,000

PROGS & ANALYST/PROGS. to £11,000 IBM COBOL

At the end of 1981 and the beginning of 1982 we have identified numerous and various requirements in the IBM sector. All the sites are mainly Cobol orientated but any PL1 knowledge would be an advantage. One C. London user has recently installed two IBM 4341 machines and now wishes to expand their development team substantially. The posts range from programmers, with 1 year's Cobol, to Analyst/Programmers, with around 3 years' experience. Preference will be given to applicants with some knowledge of CICS or similar real time system although training will be given where necessary.

This is a typical C. London requirement but there are many other sites recruiting in other parts of London and the Home Counties.

These are just a small selection of current requirements. For details of these and others not advertised contact us now.

(B203)

*Sunday, mowing the lawn
won't be the same....*

DEC PDP11 VAX Technical Support

We are the leading supplier of DEC-based systems in South Africa and are enjoying a very healthy demand for our product range within the commercial, manufacturing, and government application areas. Our success has given us a R10 million turnover and we are now sustaining an annual growth rate of 40%. As a result of our product popularity, covering networking, communications and stand alone applications, we are seeking to recruit experienced DEC personnel to help with the installation and development of systems within our Client base.

We are particularly seeking DEC PDP11 and/or VAX experience, together with a good knowledge of RSX II operating systems. Our main programming language is COBOL but any experience in ASSEMBLER, CORAL, OR BASIC would be helpful, as would previous networking/communications knowledge. Our facilities are based in the Johannesburg area but our Clients are spread throughout South Africa and travel to sites will occasionally be required.

As a well established Company, we can offer an excellent package of salaries and benefits which we will measure against abilities available. We can also demonstrate a high degree of

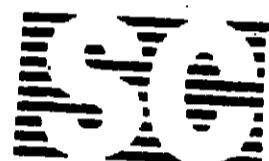
12 month Renewable Contracts
or
Permanent Positions
cR20,000 - R35,000
+ CAR

Johannesburg South Africa

flexibility in how a remuneration package can be constructed and tailored to suit all manner of personal requirements.

Each Candidate will be assessed entirely on merit, but for guidance around 2 years experience would be worth approximately R20,000 + Car and relocation/travel assistance. Obviously a higher standard of living is available at a much lower cost, particularly with less income tax and purchase tax at only 4%. Consequently a very pleasant 12 months or longer - even permanently if you wished - can be enjoyed in a climate unquestionably more favourable than a British winter or summer!

If you would like to consider a move to South Africa, call our Advising Consultant to arrange a meeting in London, Birmingham or Manchester.
MARTIN STAINTHORPE ON 021-236 3781 (24 hour answering service)
OR 021-744 1862 (7-9 pm evenings & weekends)



Specialist Computer Recruitment Ltd

London 01-935 0671 & 01-486 0461 James House, 46 James Street, London W1M 5HS.
Birmingham 021-236 3781 35-37 Great Charles Street, Queensway, Birmingham B3 3JY.
Manchester 061-833 0427 Blackfriars House, The Parsonage, Manchester M3 3JA.
Brussels 010 322-640 7151/71 Avenue Louise 327, Bruxelles 1050 Brussels.
Amsterdam 010 3120-780947 Willemsparkweg 92, 1071 H.M. Amsterdam



Computer Services Association
people move them

Imagination has come

Investment in hardware!

Now one of the country's most advanced D.P. installations, the Tesco Computer Division is totally committed to the quiet revolution which is rapidly changing the face of British retail practice.

The latest addition to our comprehensive range of hardware is the

IBM 3081 with its 16 megabytes of storage - the first to be operational in the U.K. Couple the whole installation: 3033 & 4341 C.P.U.'s, 3850 mass storage, 3800 laser printers, etc., etc., with an unbeatable flair for software creativity and you'll see why we need to match it with the very best people; imaginative,

responsible people who will respond to a challenge with speed and efficiency.

If you measure up we'd like to hear from you - it's the sort of career opportunity you can't afford to let slip. Check the list of current vacancies below:-

Programming Manager

up to £16,500 + car

Project Leader (Programming)

up to £14,500

Programming Team Leader

up to £13,000

Senior Systems Analysts

up to £13,000

You will need the experience and ability to manage a large development group using structured programming techniques, I.M.S. and database.

To be responsible to the programming manager for one or more programming teams. You must have 2 years experience of managing in an IBM mainframe development environment, structured programming techniques desirable.

To supervise a team of programmers in the support, development or enhancement of one or more computer systems. You should have been closely involved in programming for at least 5 years with experience of IBM 370, MVS, IMS, TSO and COBOL.

Applications are invited from Analysts with experience in feasibility studies, systems design and user support:

In addition there are vacancies at various levels for Analysts, Analyst/Programmers, Job Control Technicians and also for Operators with IBM mainframe experience. Why not telephone for further information?

The salaries shown will have given you some idea of our belief in rewarding effort - and there are other big-company benefits, too, including relocation

expenses (where appropriate) to our Cheshunt Headquarters. It's attractively rural, yet within easy reach of London.

For all the facts about a career with Tesco, contact:
Mrs Pat Bennett,
Personnel Officer, Tesco Stores Limited,
Tesco House, Delamere Road,
Cheshunt, Herts EN8 9SL.
Tel: Waltham Cross 32222 or 37078.

TESCO



Putting EPOS into action.

Sales People



SALES VACANCIES

Account Director circa £22K on Quota
Account Managers circa £20K on Quota
with a market leader in Computer & Office Automation Systems

The Company

The people

The benefits

The action

Make the right career move and join one of the best established and most successful office computer companies. Our North London based clients expect to increase their business by 40% this year and a young aggressive sales team is needed to achieve this target.

This team will be selling into the government and public utilities area. Sales people (28-35) with 4-6 years experience of selling hardware in a similar environment would be ideal. The account director (30+) should have a proven track record of sales and management preferably in the public sector area.

The appointed individuals will enjoy an attractive package of benefits: a five figure base salary, generous guarantees, a 2 litre company car, and attractive sales incentive schemes providing circa £20k on quota for Account Managers and circa £22k for the Account Director. Opportunities for career progression will be outstanding.

If you are confident, with directness, drive and ambition then selling the computer technology of the future could be the challenge you have been waiting for.

*Ring Roger Haylock on
01-836 8411 NOW!*

WANTED IN THE U.S.A.

6 x Analyst/Programmers COBOL, IMS, CICS circa \$35,000

People with experience of life assurance systems will be preferred for these interesting assignments. The work involves the development of a new comprehensive insurance package. The location is Marina del Rey, the most attractive beachside development in Los Angeles. Assignments are for 12 months (extendable). The climate, the location, the work and our benefits all add up to an attractive combination.

Our Package

provided:
family air fares
relocation allowance
interest free loans
highest rates
weekly pay
protection against
currency fluctuation
sickness payments

arranges:
medical insurance
personal loans
assistance with settling in
accommodation

26 x Programmers, Systems Programmers and Database Designers \$30,000 to \$42,000

We are recruiting a 26 person project team for the development and implementation of on line database financial systems on an IBM 4341 MVS installation in Connecticut. Assignments are for 6 to 12 months and we require the following specific skills: MVS COBOL programmers, IMS/CICS programmers, VM Software programmers, FOCUS, IFPF/SAN, MVS and CICS system programmers, IMS Database designers and administrators.

If any of these positions interest you, Ring Mary Coleman or Lynne Lawler on 01-836 8411 (24 hrs). Interviews with our U.S. clients will take place in the next four weeks.

By Computer People International.

System 34 Senior Analyst/Programmer

We are seeking an experienced RPGII Analyst/Programmer who is ready to take on the installation and development of Maapis and GFAS for a new IBM System 34.

The ideal candidate will need previous involvement in analysis to be capable of identifying and solving production and accounts systems problems. The person appointed will take full responsibility for the installation and will report to the Financial Director.

We are a medium sized specialist manufacturing company and part of a major industrial group. As well as offering a realistic salary and normal benefits, relocation assistance is available.

To apply, please telephone 01-686 9693 (24 hour answering service) or write to Nick Foulser quoting ref: CW100-2F at Capp Associates whom we have retained to act on our behalf.

**CAPP
ASSOCIATES**
01-686 9693

Capp House, 96d South End,
Croydon CR9 3SD
Computer and Professional
Personnel Consultants

We're small enough... to handle you Personally

Contact us for your career move. We have an excellent record in placing our candidates in the very best Permanent positions. Our close relationship and understanding with our clients' needs helps us to match these with your experience and ambitions.

To find out more about these positions or other possibilities for future Permanent and Contract work call us today.

PROGRAMMER

£10,500
+ Benefits

A minimum of 2 years IBM COBOL is necessary to join this totally new installation. The company utilise a new IBM 4341 with an SNA network serving 17 branch offices. Systems are on-line and an extensive database development is under way.

REF: MB

SENIOR PROGRAMMER

with team leader responsibility to
£10,500 p.a. Rural

2 Years + experience with IBM Assembler and/or PL/I knowledge of technical Systems design or distributed process Systems desirable. Modern offices and first class benefits package.

REF: MB

JUNIOR PROGRAMMERS

City £18000 + Subsidised
Mortgage

Programmers required with a minimum of 18 months commercial experience of IBM ASSEMBLER or COBOL. Full re-training in CICS will be given to successful candidates. Installation comprises 2 x IBM 4341's under DOS/VSE and Power/VSE and making extensive use of CICS and BTAM.

REF: MB

PL1 & ASSEMBLER PROGRAMMERS

£10,000 + Subsidised
Mortgage

Craytek to 2 Years + experience with IBM Assembler and/or PL/I knowledge of technical Systems design or distributed process Systems desirable. Modern offices and first class benefits package.

REF: MB

Shuter Smith Associates
28, Berkeley Square, London, W1.



Call
01-491 4653

COMPUTER SYSTEMS MANAGER

Specialist Offshore Design Company require a Computer Systems Manager to install and supervise a Computer-Vision CADD's 4, 3D computer-aided graphics system. Successful applicant will command a salary of not less than £20K/annum (Negotiable).

Ring Mike Bryant, of
BRYANT TECHNICAL APPOINTMENTS
on 01-881 0300
Please use answering service if necessary

(8221)

COMPUTER SALES

The world's leading supplier of systems to professional accountants invites applications from experienced Sales Personnel (M/F). Hartley have a wide and mature product range, both hardware and software and are increasing staff to handle an imminent and dramatic enhancement to the range.

We wish to appoint staff in a number of areas. Total remuneration package will be in excess of £20,000 pa for a target performance. A company vehicle and all appropriate benefits will be provided.

Please send applications, in confidence to:
The General Manager, Hartley Computer UK Limited,
35/37 Brent Street, London NW4 2EP. 01-202 6244.

8224

What makes
Software
pull
Engineers
up
roots?

Most people require some very good incentives to be tempted to uproot and move to a new job and a new area. Which is exactly what we are asking Software Engineers to do - to move to our Wimborne headquarters near the South Coast.

So what's so special about the package?

To begin with, we're a young, successful and rapidly growing company producing a wide range of Automatic Test Systems for the international electronics industry.

Since our foundation in 1970, we have become the leading European manufacturers of this equipment due to innovative and creative developments in hardware/software design.

We offer a salary of £7-£10K, plus a profit sharing bonus, full relocation expenses and a full range of fringe benefits including

pension scheme, free life assurance and 24 days annual holiday.

So, if you're educated to degree level with at least 2 years' experience in computer programming/software design with advanced structural development, high level language compilers, automatic programme generation and sophisticated debugging packages.

It's certainly a very attractive area to live in. We're based very near the New Forest and the popular sea-side resorts of Bournemouth and Poole.

Within the area there is an attractive range of housing to suit every taste, and an impressive range of recreational and educational facilities.

We offer a salary of £7-£10K, plus a profit sharing bonus, full relocation expenses and a full range of fringe benefits including

MEMBRAIN
Schlumberger

UNIVERSITY OF LIVERPOOL Chair of Computer Science

Applications are invited for the

above Chair which has been established in a new separate Department.

The successful candidate will be ex-

pected to take a leading role in de-

veloping the computer science

courses in the University.

He will also be expected to

undertake and encourage re-

search programmes and research in

computer science.

The salary will not be less than £11,000 per annum.

Applications (12 copies), together

with the names of three referees,

should be received not later than

10th February 1982, from the

University, P.O. Box 47,

Liverpool, L69 3BX, from whom

further particulars may be obtained.

Copies of the advertisement may be obtained by application to the Secretary, Department of Employment, 1000 London Wall, EC2Y 5AU, or by telephoning 01-520 2222.

Applications should be sent by air-mail. Quota ref: RV/828/CW. (8171)

IA is a registered Employment Business licensed by D.E.C.

COUNTY ENGINEER'S DEPARTMENT Systems Engineering Section

Applications are invited for the following posts within the Systems Engineering Section of the County Engineer's Department. The successful applicants will join a multi-disciplinary team responsible for the design, operation and maintenance of a number of computer-based control systems, including a large multiprocessor Wids Area Traffic Control System.

SENIOR SYSTEMS ENGINEER

(HARDWARE)
£8,190-£9,528 p.a.)

Applicants must be Chartered Electrical/Electronics Engineers and have at least five years' practical experience in the design of real-time computer-based control systems. Additionally, applicants should have some experience of C.C.T.V. and V.T.T.-U.H.F. Radio systems.

SENIOR SYSTEMS ENGINEER

(SOFTWARE)
£8,190-£9,528 p.a.)

Applicants must be Chartered Electrical/Electronics Engineers and have at least five years' practical experience in the design of real-time computer-based control systems. Additionally, applicants should have some experience of C.C.T.V. and V.T.T.-U.H.F. Radio systems.

Application forms, returnable by 8th February, 1982, and further details from the County Engineer, 3rd Floor, Stow House, Cannery Place, Liverpool L1 8JW (Tel: 051-227 8234 Ext. 2512).

Please quote Ref. 8/20 in all correspondence.

Dr. W. K. Taylor, Department of Electrical and Electronic Engineering, University College, Torrington Place, WC1E 7HT.

(8171)

Merseyside County Council

AN EQUAL OPPORTUNITY EMPLOYER

IMMEDIATE REQUIREMENTS FOR PERMANENT AND CONTRACT STAFF MIDLANDS

- Programmers
- Programmers
- Programmers
- Analyst Programmer
- Systems Analyst
- ICL COBOL VMEB IDMS
- IBM RPG II SYSTEM/34
- IBM COBOL CICS
- IBM COBOL CICS DL1
- On-line manufacturing background

NORTH & SCOTLAND

- Systems programmer - IBM 3031, 3033
- Senior programmer - ICL COBOL VMEB IDMS
- Systems programmer - Burroughs 7700, 7800

These represent a small selection of the opportunities currently available for permanent and contract staff. For more details on these and a wide variety of other vacancies contact **VAL LACKENBY** on 021-632 5111.



EXCELLENT CONTRACTING OPPORTUNITIES

Our immediate domestic and international consulting needs are detailed below. If you are a professional disposition, skilled and dedicated, and wish to join our growing permanent or contract staff, please contact us in respect of these and future opportunities.

International MARK IV SYSTEM 34/38

FORTRAN
FOCUS
COBOL, HP3000
ADABAS
IBM, DOS/V,
POWER, VS, CICS
and/or DL/1

Analysts &
Programmers

Programmer/Analysts

Programmer
Designer/Analyst/Programmer
Project Leader/Designer
Programmer
Programmers & Analysts
Programmers

System Programmers

For more information
please contact:
Resourcing Department
TANGENT COMPUTER SERVICES
102/106 South Street
Romford, Essex
Tel: Romford (0708) 750201
10am-4pm, Mon-Fri (excluding service)

New York
New York
Africa
Middle East
New York
Middle East
New York

Middle East
New York

London
Home Cnts.
Scotland
London
Home Cnts.
Home Cnts.
Home Cnts.
Essex

Home Cnts.

TOP RATES DOS COBOL/CICS HP 3000 COBOL UNIVAC COBOL DMS MONTREAL ASSOCIATES SYSTEMS

01-582 2844 (4 lines) Emp. agy.

FOR
CLASSIFIED
ADVERTISING USE

DIRECT
LINE
01-561 0121

Department of Computing Services

Three posts are available in the Department of Computing Services which provides a general computing service to the Polytechnic on a DEC20Q, PDP140 and various microcomputers. The major languages are FORTRAN, BASIC, and COBOL and major packages include SPSS, NAG, GENESYS and GINO-F.

Chief Systems Programmer

(PO1 4-8 - £8991 - £10,028)
to lead the systems team of four which is responsible for the smooth running of the systems software on the central computers. It is expected to appoint a person with at least five or six years relevant experience to this important and demanding position.

Senior Applications Programmer

(SO1-SO2 - £8100 - £9528)
to join the application team of six which is involved in writing, maintaining, installing and advising on application programs in a wide field of disciplines including engineering, business and science.

Senior Program Adviser

(SO1-SO2 - £8100 - £9528)
to join the advisory team of five which provides the computing advice and information required by staff and students of the Polytechnic.

Further details and form of application available from The Assistant Director (Administration) Trent Polytechnic, Burton Street, Nottingham NG1 4BU.

Forms to be returned as soon as possible.

TRENT POLYTECHNIC NOTTINGHAM

ROCON LTD
is a national account dealer for Apple Computer UK Ltd and a Level 1 service dealer, marketing the world famous Apple II and III personal computer systems. In addition, Roccon is a dealer for many of the peripherals associated with Apple and has hardware and software departments offering the customer a complete service ranging from in-house maintenance through to tailored software. Due to expansion, Roccon Ltd are currently seeking successful self-starters in the following fields:

SALES
SALES MANAGER, preferably with experience in the microcomputer or associated industries. The salary package is made up of a good basic plus commission and car expenses.

SOFTWARE
SENIOR PROGRAMMER with the proven ability to control a project from the initial feasibility study through the design phase to the user program. Past experience an advantage. Salary negotiable according to experience. There is also work available for freelance programmers with the relevant experience.

HARDWARE
ENGINEER with experience of microcomputers and peripherals. Driving licence required. Salary negotiable according to experience.

Applications providing details of qualifications and career to date should be sent to: K. R. Rosewell, Managing Director, Roccon Ltd, Radley Road Industrial Estate, Abingdon, Oxon.

(0228)

UNIVERSITY OF LONDON COMPUTER CENTRE

Datacommunication Network Support

The University of London Computer Centre is equipped with powerful systems and providing a computing service to its users in the South of England over both a large range of communication links and network types.

An exciting development programme is in progress which includes substantial replacement of existing

systems and the introduction of new equipment.

The Network Support Section is responsible for day-to-day operation of this extensive network. This is varied, but includes the identification and analysis of technical and operational problems, variety of test equipment and technical aids, liaison with users, maintenance agencies and personnel at other computer installations, and the maintenance of records, administrative systems that contribute to the running of the Section. Installation and commissioning of new datacommunications equipment is also undertaken with involvement in long term planning.

A vacancy exists at a senior level and applicants invited from candidates with a sound technical background in telecommunications or electronics. Candidates should preferably be educated to HNC, HND or equivalent standard, but other comparable qualifications will be considered.

The starting salary will be in the range of £10,000 p.a. approximately depending on age, qualifications and relevant experience.

Application Forms are available from:
The Assistant Secretary, ULCC, 20 Gulliford Street, London WC1N 1DZ. Telephone No. 01-405 8822. Applications close 5th February 1982.

ANALYST PROGRAMMER DORSET - With sole responsibility for systems and programming

South Western Farmers is a successful farming co-operative with an annual turnover in excess of £30 million operating 10 farms in Dorset, Devon and Somerset. We are currently implementing a number of major on-farm systems on our farm units based at Head Office in Dorset. These systems include: financial, payroll, stock record, inventory control and management reporting. Agricultural systems using terminals at our depots. We need an Analyst Programmer to help install and develop systems and to provide guidance and assistance both to senior staff on all aspects of computerisation.

Applicants will probably be 24 years plus and have held systems and programming experience, preferably in batch mainframe above. Although the position is based at Dorchester, some local travel will be required during the implementation of these systems.

Please write, enclosing a CV giving brief details of experience and present salary to:

THE FINANCIAL CONTROLLER South Western Farmers Ltd

Unity Chambers, Dorchester, Dorset, DT1 1HJ

TEESSIDE POLYTECHNIC COMPUTER CENTRE

Teesside Polytechnic is a centre of computing education. The Computer Centre has a staff of 40 and operates a large mainframe, minicomputer and a range of micro-computers.

Applications are invited for the following three vacant posts:

SYSTEMS PROGRAMMING MANAGER

Reference Number P.CU.02

This is a key post involving both management and technical responsibility, with full responsibility for the running of the Computer Centre.

Salary: £12,225-£14,250 per annum

PROGRAMMER ANALYST/SUPERVISOR ANALYST (2 POSTS)

Reference Numbers P.CU.03 and P.CU.04

One person to run the Graphics and Communications Group in developing and applying graphics and communications advances.

Another to join the Operating Systems and Computer Group in developing and applying systems to further the use of the VME.

Salary: according to scale, up to £12,225 per annum

PROGRAMMER ANALYST

Reference Number P.CU.05

One person to join the Graphics and Communications Group in developing and applying graphics and communications advances.

Salary: according to scale, up to £12,225 per annum

APPLICATIONS PROGRAMMER

Reference Number P.CU.06

Applications for all posts for all three posts are available from:

The Personnel Section, Teesside Polytechnic, Middlesbrough, Cleveland, TS1 3JA. Telephone: 0622 712121, Extension 2114.

Closing date for applications: 28 February 1982.

NEW COMPUTER DEVELOPMENT PRESCRIPTION PRICING AUTHORITY NEWCASTLE UPON TYNE

The Authority is developing a Computer Pricing and Information system capable of processing and analysing 320 million National Health Service prescriptions received each year from more than 10,000 contractors. Currently 2,000 staff are employed to process this work manually in nine centres situated in Northern England.

The existing Computer Division is expanding its staffing requirements to procure and implement 1,500 data entry terminals, mini-micros, and the Computer Pricing System throughout the country.

The first delivery of hardware has recently been received and includes Honeywell Level 84/DPS - 4 computer, using COBOL.

We require:

SYSTEMS DESIGNER/PROGRAMMERS

(Procurement and Applications Programming)

Salary scale £26884 - £28147

Subject to certain conditions, and previous service an allowance of £250 p.m. can be paid on all points of the scale.

Recruitment is restricted to Newcastians.

Application forms and further details are available from the Personnel Officer.

Prescription Pricing Authority,

Gildersome House, Gildersome Road,

Newcastle upon Tyne, NE11 9EP.

Telephone: 091 222 1911 ext 2800.

Closing date 10 February 1982.

Account Manager Education/Government

c£17,000 + on Target

In less than a decade Hazelton have become a leading manufacturer and supplier of high technology terminal products, enjoying a level of business achieved by few in this highly competitive industry. Our extensive product range and expertise in terminal technology have provided solutions to a host of varied environments, and continue to answer the problems of the eighties and beyond.

A particular area of success has been the education and government sectors, and it is for that market place we wish to retain the services of a highly skilled Senior Sales Executive.

Ideally you will be 28/35, with a successful sales track record; where experience of negotiation within the education and government sectors is desirable; you should also reside within commutable distance of our Middlesex HQ.

Additionally to the on target remuneration of £17,000, there is a most attractive car scheme and range of fringe benefits.

For further information and immediate confidential interview, contact our Advising Consultant, Chris Fry on our London number, 24 hour answering service and 05827 2354 evenings and weekends.



Specialist Computer Recruitment Ltd

London 01-936 0871 James House, 46 James Street, London W1
Birmingham 021-236 3781 35-37 Great Charles Street, Queen'sway, Birmingham B3 3JY.
Manchester 061-833 0427 Blackfriars House, The Parsonage, Manchester M3 2JA.
Brussels 010 322-840 7161/71 Avenue Louise 327, Boite 4, 1050 Brussels.
Amsterdam 010 3120-780947 Willemsparkweg 82, 1071 H.M. Amsterdam.

PROFESSIONAL SALESPEOPLE FOR...



- HIGH BASIC SALARY
- QUOTA EARNINGS £20K
- COMPANY CAR
- EXPANDING COMPANY
- ADVANCEMENT TO MANAGEMENT
- NEW PRODUCTS

• THE OPPORTUNITIES

These are genuinely exceptional opportunities for experienced and professional sales people to join an exciting and developing company offering real potential for rapid advancement into regional and branch sales management. To begin with, you would need to apply your experience and sales expertise in your own designated territory, selling the KODE range of Distributed Processing Systems, in both Public and Private Sectors.

The existing Computer Division is expanding its staffing requirements to procure and implement 1,500 data entry terminals, mini-micros, and the Computer Pricing System throughout the country.

You absolutely must be of very high calibre, hard working, well trained in modern sales techniques and capable of fulfilling sales functions including: client prospecting, client surveys, giving presentations and demonstrations, preparing sales proposals and closing the business. Full training in the KODE product range, market orientation and company history will naturally be given, during a four week training programme at the KODE LTD UK Headquarters in Caine, Wiltshire.

If you are successful in this appointment, in addition to potentially very high earnings, you will benefit by the numerous new senior sales opportunities becoming available following an imminent major new product launch and enhancement of the KODE product range.

We require:

SYSTEMS DESIGNER/PROGRAMMERS

(Procurement and Applications Programming)

Salary scale £26884 - £28147

Subject to certain conditions, and previous service an allowance of £250 p.m. can be paid on all points of the scale.

Recruitment is restricted to Newcastians.

Application forms and further details are available from the Personnel Officer.

Prescription Pricing Authority,

Gildersome House, Gildersome Road,

Newcastle upon Tyne, NE11 9EP.

Telephone: 091 222 1911 ext 2800.

Closing date 10 February 1982.

• YOUR NEXT MOVE

We would like to hear from all sales people who believe they have the qualities, experience and ambition necessary to capitalise on these opportunities. Our immediate requirements are for people to cover LONDON AREA and NORTH OF ENGLAND TERRITORIES.

but due to our expansion plans we want to hear from you wherever you are.

Please contact me at my office below by telephone or in writing, or call me at home, evenings or weekends on 08645 2210, by transfer charges, if necessary. Interviews will be held in Manchester, London, Worcester or Caine.

The first delivery of hardware

IMMEDIATE CONTRACTS FOR PROGRAMMERS

PROGRAMMER MIDDLE EAST/ FAR EAST
PROGRAMMERS MIDDLE EAST

PROJECT LEADER CROYDON
ANALYST/ PROGRAMMER CROYDON
PROGRAMMER LONDON

PROGRAMMER LONDON

PROGRAMMER CROYDON

For further details contact Nic Poland
TLP
A Division of Tate & Lyle Industries Ltd.
Leon House, High Street, Croydon CR9 3NH
01-680 2323
A Member of the Tate & Lyle PLC Group



Members of Computing Services Association

ENEG
EHIGH
£2K+
£2K+

IBM OS, MSS JCL WRITERS

IBM DOS/VSE/VM OPERATORS

IBM DOS/VSE/VM JCL WRITERS

IBM OS, VS1 VM/CMS EXEC & JCL WRITERS

BURROUGHS 8800/7700 OPERATORS

UNIVAC 1100 OPERATORS

ICL GEO-3 OPERATORS

Contact: MIKE PALMAN or
GARY TOTTEN

PERMANENT

IBM SYS 34 OPS, BERKS
IBM MVS/JES2, ALL LEVELS, MIDDX
ICL ME29 OPERATOR, ESSEX
IBM VS1/VM OPS, SUPERVISOR, ESSEX

Contact: STEPHEN GREEN
KPG COMPUTER SUPPORT SERVICES LTD
COBDEN HOUSE, PARK LANE
RICHMOND, SURREY TW9 2RA

01 948 8022

PROGRAMMERS

Move into communications!

HERTS & KENT £8,000-£14,000

If you have the interest and talent to help maintain our client's standards of excellence in the fast expanding field of communications technology you could benefit from:

- a technically stimulating career and the challenge of formulating microprocessor-based communications software using AMDAHL V7 and IBM 4300 host processors
- excellent training, including PL/I if you have not previously used this language
- plenty of scope to progress upwards and/or widen your computing expertise — as you would expect from a leading international company developing a diverse range of advanced technology products
- an informal working environment in first class modern offices
- a substantial increase in earnings — salaries are above average and range from £8,000 to £14,000 depending on experience
- generous relocation financial assistance that will appeal to the first time buyer as well as those who want to increase the size or improve the quality of their homes.

There are openings at various levels at our client's offices in Kent (bordering SE London) and South Hertfordshire.

We would like to hear from programming enthusiasts who have at least two years' practical high level language experience (technical or applications orientated) — and who have the desire to be at the forefront of communications software technology.

Please ring us for a talk, quoting reference 681CW, or leave a message on our answering machine after hours.

EDP SYSTEMS 01.637
52-53 Margaret St. London W1N 7FF 5796



CANADA DATA PROCESSING PROFESSIONALS

opportunities in the Province of ALBERTA

OUR ORGANISATION

Alberta Government Services is the central Data Processing facility for the Government of the Province of Alberta. As one of the largest computing facilities in Western Canada, our systems services include new development, maintenance and enhancement activities associated with the challenging applications of our clients.

Our Computing Centres operate an IBM 3033AP, an IBM 370/168MP and Amdahl VB under MVS/ES2, and an IBM 3033S. The configurations support a network of more than 900 terminals throughout the Province. Software includes COBOL, MARK IV, LIBRARIAN, CICS, TOTAL ENVIRON 1, ADABAS, IDMS, TSO CMS and COMPLETE.

OUR REQUIREMENTS

If you have applications systems experience, we invite you to consider one of our challenging positions as an Intermediate or Senior Programmer/Analyst or Project Manager in our progressive organization located in Edmonton, Alberta.

OUR OPPORTUNITIES

Come and work in a professional consulting organisation with the opportunity for advancement and growth in a challenging and stimulating environment. Appointment level and salary will be dependent upon experience. Benefits include contributory pension, life insurance and medical/dental plans.

Relocation assistance includes air fare to Alberta for successful candidates and their families together with various settling-in allowances.

An interview team will be in the U.K. in February 1982.

Please send curriculum vitae by February 1st, 1982 to:

M. G. D. Ireland,
Alberta Government Services,
50 Mahogany Mobility Office,
Government of Alberta,
Alberta House,
1 Mount Street,
London W1Y 5AA



Systems Programmer

Staines
Middlesex
c.£11,500

Our client, United Glass, is looking for an experienced Systems Programmer to implement and support software on the growing BM 4341 installation which provides batch and on-line processing.

Software used includes OS/VS1, VM/CMS, CICS, DL1, Roscoe, Elias, MetaCOBOL and other packages associated with a dynamic computer installation. Conversion to MVS and VTAM are under consideration.

The successful applicant will need to have had at least 2-3 years experience of OS/VS1 or MVS plus a good knowledge of CICS/DL1.

The job will present an excellent opportunity for an individual with drive and self-motivation to increase software skills and expertise and take supervisory responsibility.

The remuneration package includes free BUPA, Life Assurance and generous relocation expenses where necessary.

For further information please write or telephone (24-hour answering service) quoting ref: CW101-2P

CAPP ASSOCIATES
Capp House, 96d South End,
Croydon CR9 3SD
Computer and Professional
Personnel Consultants

8213



10% FALL IN MORTGAGE RATE

It is forecast that 1982 will result in a massive reduction in house purchase repayments for over 500 computer professionals entering the world of banking and finance.

experience and some programming background on IBM. On-line experience would clinch a deal around £9k+ mortgage.

IBM Systems Programmer to join one of the most famous and respected companies in Britain. MVS is essential. Believe me they have a great package. City based.

A major British Clearing Bank is shortlisting applicants for the position of Chief Systems Analyst. The right person will have management experience and the energy to shoulder the responsibility of extensive development work. Salary £10,000+ mortgage.

If you feel you have the potential to succeed in the financial community, regardless of whether you match the above specifications, give Richard Simuts at IPP a call on 01-938 1804 to chat about what the banks can offer you.

Information Processing People, Specialist Recruitment Consultants, 20 Kensington Church Street, London W8 4EP.

PROGRAMMERS

BEDFORDSHIRE

Up to £8,500 plus bonus

We require several Programmers with at least one year's experience in

★ ICL SYSTEM TEN/25

All successful applicants will demonstrate that they have the potential to develop their own skills and must be able to work with the minimum of supervision whilst providing assistance to other staff.

BECOME PART OF OUR SUCCESS STORY

PICK UP THE TELEPHONE NOW

Contact either Alan Jephcott or Bill Bratt
Lloyds Bank House, 39 High Street
Biggleswade, Beds
Telephone (0767) 316286

Barron McCann Limited
Computer Systems Consultants

EXPERIENCED RECRUITMENT CONSULTANTS

Do you have a successful record dealing with contract and/or permanent computer personnel, and want to join an established consultancy where results are rewarded?

If you are interested, then phone 01-439 2621 between 10 a.m. and 4 p.m. any weekday quoting reference CW211.

SHIFT LEADER (Data Control Section)

West London
ICL 2960

c £7500

An excellent opportunity has arisen within a large financial organisation for someone with a minimum of three years' ICL operations experience who wishes to further his or her career.

Experience of 2900 VMEB is necessary, along with the ability to supervise two other members of staff (a knowledge of George II+ and DME would also be useful). The ability to communicate at all levels is essential.

The ideal applicant will have an appreciation of the day to day running of a Data Control Section, preferably gained through first hand experience.

The company offer excellent working conditions and a structured career path. The current salary will be reviewed in March.

For an immediate interview or further details telephone 01-439 6481 quoting reference BC4717.



COMPUTER PERSONNEL CONSULTANTS.
National House, 86 Wardour Street, London W1V 3HP.
Tel. 01-439 6481. 24-Hour Answering Service.
Lic. No. SEA/102

0114

SOFTWARE ENGINEERS

PROGRAMMERS

COBOL/P1/TCPG11

SENIOR SYSTEMS ANALYSTS

Mapics/Spica, Engineering Background, IBM exp.

SALES EXECUTIVES

Hardware/Peripherals/Products

ANALYST PROGRAMMERS

DEC/MUMPS

PROGRAMMERS & ANALYSTS

Data General/Perkin Elmer/DEC

HARDWARE/SOFTWARE DESIGNER

SENIOR SYSTEMS PROGRAMMERS

DOS/CICS/Teleprocessing

ANALYST/PROGRAMMERS

ICL ME28/System 10

FIELD SERVICE ENGINEERS

Maintenance and Mine

TECHNICAL AUTHORS

TECHNICAL SUPPORT

SOFTWARE ENGINEERS

Communications

ANALYSTS

2 years experience

CONSULTANTS

Banking/Insurance

SOFTWARE ENGINEERS

Fortran/Autocoder

PROGRAMMERS

Cobol/IBM Assembler

SYSTEMS PROGRAMMERS

PROGRAMMERS

IBM 2 years exp.

For the opportunity to hear about YOUR next job throughout the U.K. telephone:

to £14K

London/Home Counties

to £12K

Essex

to £20K package

to £12K

London

to £12K

North Berks

to £13K

London/Home Counties

to £12K

Surrey

to £10K

Nationwide

to £15K

Western Europe

to £12K

Nationwide

to £11K

Bucks, Berks, Hants

to £13K

East/West London

to £20K

London

to £10K

Tewkesbury

to £12K

East Anglia

to £13K

Croydon/Brent

to £18K

S. Wales

to £11K

Gloucestershire

to £14K

Midlands

to £12K

Wales

SMR
Sales & Marketing Recruiters Ltd
A Sales and Marketing Recruiters Company

SALESMEN
Exchange your job for a career

Whilst you are helping companies to make the most of their future productivity, do you ever think about the productivity of your own business?

A job is simply a task performed for a reward. A career might best be described as a vehicle for enabling the individual to exploit his strengths, overcome his weaknesses and grow towards his maximum potential. Unfortunately, most sales people are in the former category. If your job runs out of challenge, please remember that our consultants have more direct experience of computer sales and management than any other recruitment company, the skills to give individual career guidance, a reputation throughout the industry for professional competence and high ethical standards and an extensive portfolio of employment opportunities to suit most individual needs.

Sales and Marketing Recruiters - The Career Consultants! Contact Alan Williams, Alasdair Scott or Peter Hobble. (0838) 200381

LONDON & SOUTH MIDLANDS & NORTH
39 Regent Street, London W1P 2AS
33 Hope Street, Liverpool L1 1JF
200 High Street, Stevenage SG1 1AB
SALES TRAINING MARKETING RECRUITMENT

East Anglian Regional Health Authority

Computer Branch

Team Leader

Health Care Systems
Salary Scale: £8,490-£10,323 per annum
(Additional allowances up to £600 may be payable to a candidate with appropriate technical expertise.)

Systems Designers/Programmers

Starting salary up to £7,500 per annum

This Authority provides a data processing service for the East Anglian Health Districts using an ICL mainframe computer and a variety of mini and microcomputers. The major systems are now due for conversion/rewriting for an ICL 2960 computer due to be installed in mid-1983. We require a suitable qualified and experienced person to lead a small team in the conversion of major health care systems and in the development of several microsystems. We also require systems designers/programmers with at least two years experience preferably with a COBOL or programming background, to work on the conversion of financial and health care systems.

Application forms, job description and further details obtainable from the Regional Personnel Officer, Union Lane, Cambridge CB4 1HF. Closing Date: 4 February 1982

0114

GEISCO MK III

FORTRAN 77

Contract West London

Start immediately

Ring: Sheila Fox
Link Associates Limited
24A High Street, Cheam, Bucks.
(0949) 784922

Link

THE UNIVERSITY OF LEEDS
SYSTEMS ANALYST AND COMPUTING ASSISTANT (PROGRAMMER)

An experienced Systems Analyst and an experienced COBOL Programmer will be required to join a small team of analysts and programmers working in a progressive Computer Unit. This Unit carries out an interesting range of systems analysis and systems design by being actively involved in developments.

For all enquiries, telephone in an evening or leave a message on the Interphone system. The starting salary will be an appropriate point on the IA and CA scales according to experience. These ranges are £10,725-£12,725 for the Systems Analyst and £10,725-£12,725 for the Computing Assistant.

INTRODUCTION TO PASCAL AND ITS APPLICATIONS TO SCIENTIFIC AND ENGINEERING PROBLEMS

16 February-10 March, 4 May-June 1982 (110 consecutive days)

PC MICROCOMPUTING

25 February-24 March, 4 May-June 1982 (110 consecutive days)

PC MICROCOMPUTING

25 February-24 March, 4 May-June 1982 (110 consecutive days)

PC MICROCOMPUTING

SALES BIT

Make sure you sell to the decision-maker

A FEW weeks ago I spoke to a salesman who was rather distressed and disappointed due to the loss of a major sale, which he had been absolutely confident of securing. It appeared strange for him to had a high level of personal credibility with the principal executives of the company.

He had a particularly clear understanding of the company and its needs, as he had been an employee of the organisation concerned, and he knew that his product had a variety of meaningful advantages over his competitors - yet he lost the business!

This is a misleading assumption which is not true in most circumstances. The chances of the managing director being the absolute decision-maker usually grow as the value of the proposition increases, and decline as the larger the organisation he is controlling.

For instance, the managing director of a small service company buying a new photocopier is likely to decide personally on the actual machine to be purchased, whereas the managing director of a major corporation will merely "rubber stamp" the decision of a subsidiary or division to invest several hundred thousand pounds on a new computer.

On the other hand, it would be a serious mistake to exclude the managing director from the selling strategy of any prospective sale of significant value, for in most cases he is likely to have influence upon the decision-making process, as has his fellow directors and

senior executives.

The important distinction to make is between the "influence" "decision-maker" and the "singular".

Sales training often come across the term "the ultimate decision-maker". I would prefer to use the term "decision-maker", for it implies that the decision will always start from the top of the pyramid.

This is not an unusual case. There is no reason that a referral from a managing director to another can usually see the salesman's point.

But this is a rare case that demands respect. Some people reach pressure from the top, taking it as a question of their own ability to make a decision. They then try to prove their independence by a such recommendation.

If sales success is achieved, it is evident that the individual is obliged actually to make the decision and not sit back in his director's office.

Very rarely will one of any worth infliction upon a subordinates to do so effectively away from the decision-maker responsible for failure related to him.

Influence the idea by all means, but allow this to act as a stimulus for selling to the decision-maker.

Incidentally, Computer Weekly has had several from anxious readers interpreting the doings of my column last week as being the death knell of my contribution. Far from it, there's plenty of room still.

Alan Wilcock

COURSES

Programming series

TEACHERS, programmers and serious computer hobbyists who wish to extend their knowledge of programming may benefit from Tottenham College of Technology's Second Steps in Programming series of winter courses, which includes a course on Data Structures and Algorithms, and one on Program Design Methods.

The participants should have some knowledge of programming in a high-level language. Further information from Tom Short, Tottenham College of Technology, High Road, London N13 4RU. Enclose a stamped addressed envelope with correspondence.

FORTIS Electronic Technologies has recently formed Fortec Training, an independent training house specialising in microprocessor courses. The courses will be held in Cricklewood, London. Training will be given by engineers and the course fees are based on the £550 range covering all levels from an introductory £600 course, through to the £1,000-£1,200 microprocessor design, design verification and

planned for the winter of this year. The introductory course lasting 10 days is held in January, July and October at £450. Details on other Fortec courses can be obtained from Ruthie Alexander on 01-450 1147.

The Royal Society of Arts examinations board offers three computing courses, Stages I & II, in Basic, BASIC and FORTRAN. Qualification for these is open to specialists who have a background in computers in their work. Data Preparation and Inputting is for those concerned with the preparation of punched cards and magnetic tape, and Computer Operation and Output is for those who provide a knowledge of the duties of computer operators and their relation to the activities of the DTP centre. Details from the chief officer of the Examinations Board, Adam Street, Aldgate, London EC2N 8EE.

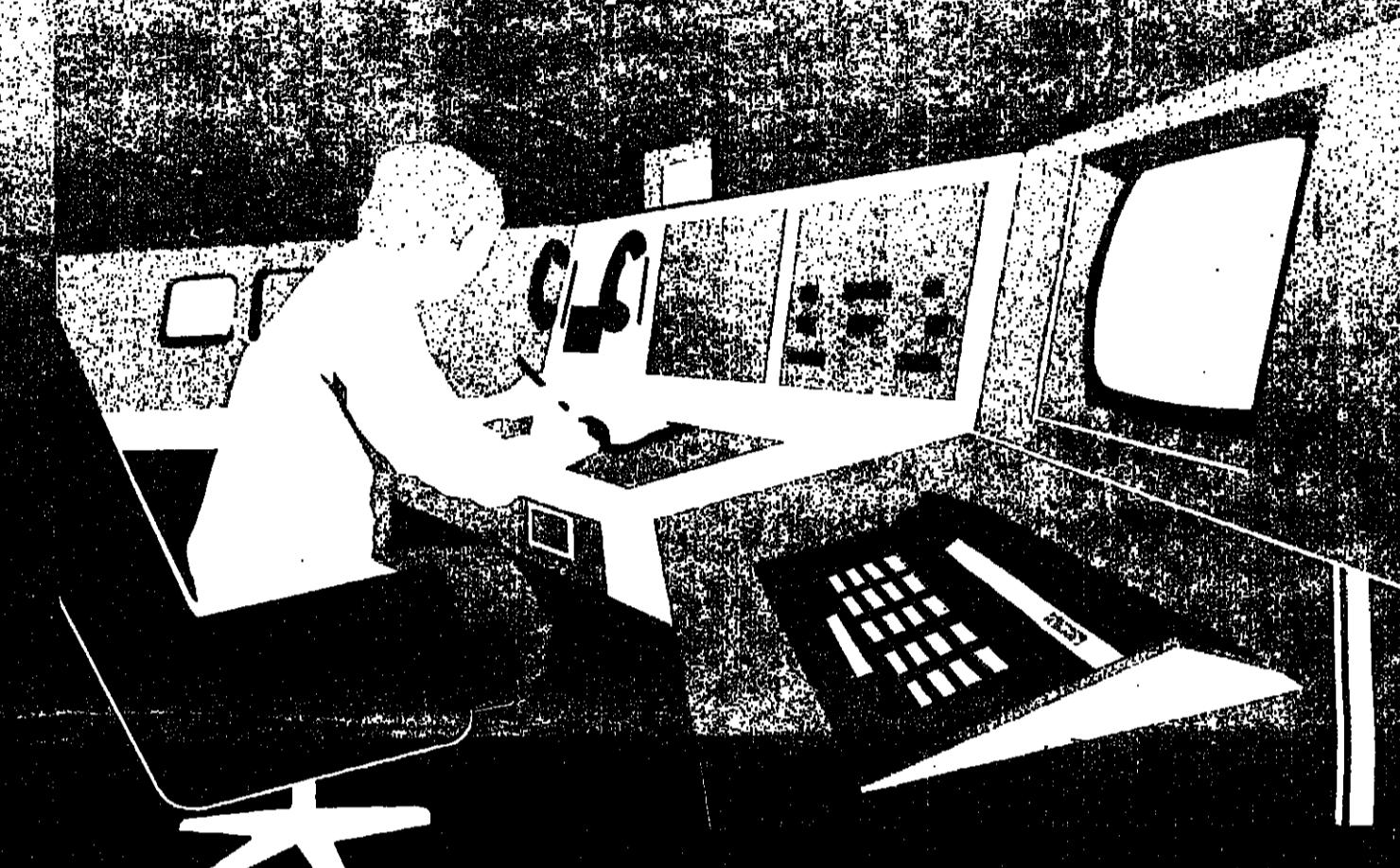
The company provide excellent induction facilities and promotion and career prospects are first-class.

These positions are based in a rural Warwickshire location and extremely generous relocation assistance is available in appropriate cases. Terms and conditions of employment are very attractive including 32 days holiday entitlement.

If you feel you have the necessary qualities to succeed in these challenging roles then contact our advising consultant, Rod Beeson on 021-643 8501

during office hours or 021-777 8743 (evenings and weekends 7-9pm). Alternatively write to him at Alpha Tower, Birmingham B1 1TT.

Software Engineers For DEC-based systems



Remote Controlled Systems circa £10K

A leading international supplier of Remote Supervisory Control Systems is currently seeking to recruit a number of Senior Software Engineers. The company undertakes total responsibility for turn-key projects which incorporate process control computer systems and associated instrumentation and communication equipment. The majority of these systems are concerned with the oil, gas and water industries.

Software engineering and program development are the central focus of the company's systems operation and with more than 20 years' experience in digital electronics, it has built its reputation on the application of sound engineering principles to modern technology. To further augment their software department they now wish to appoint several high calibre personnel.

The ideal applicant will possess the following qualifications and experience:

* a degree of HNC/HND in electrical/electronic engineering, computer science or systems control.

* Sound experience of MAC11 Assembler language and the RSX11M operating systems.